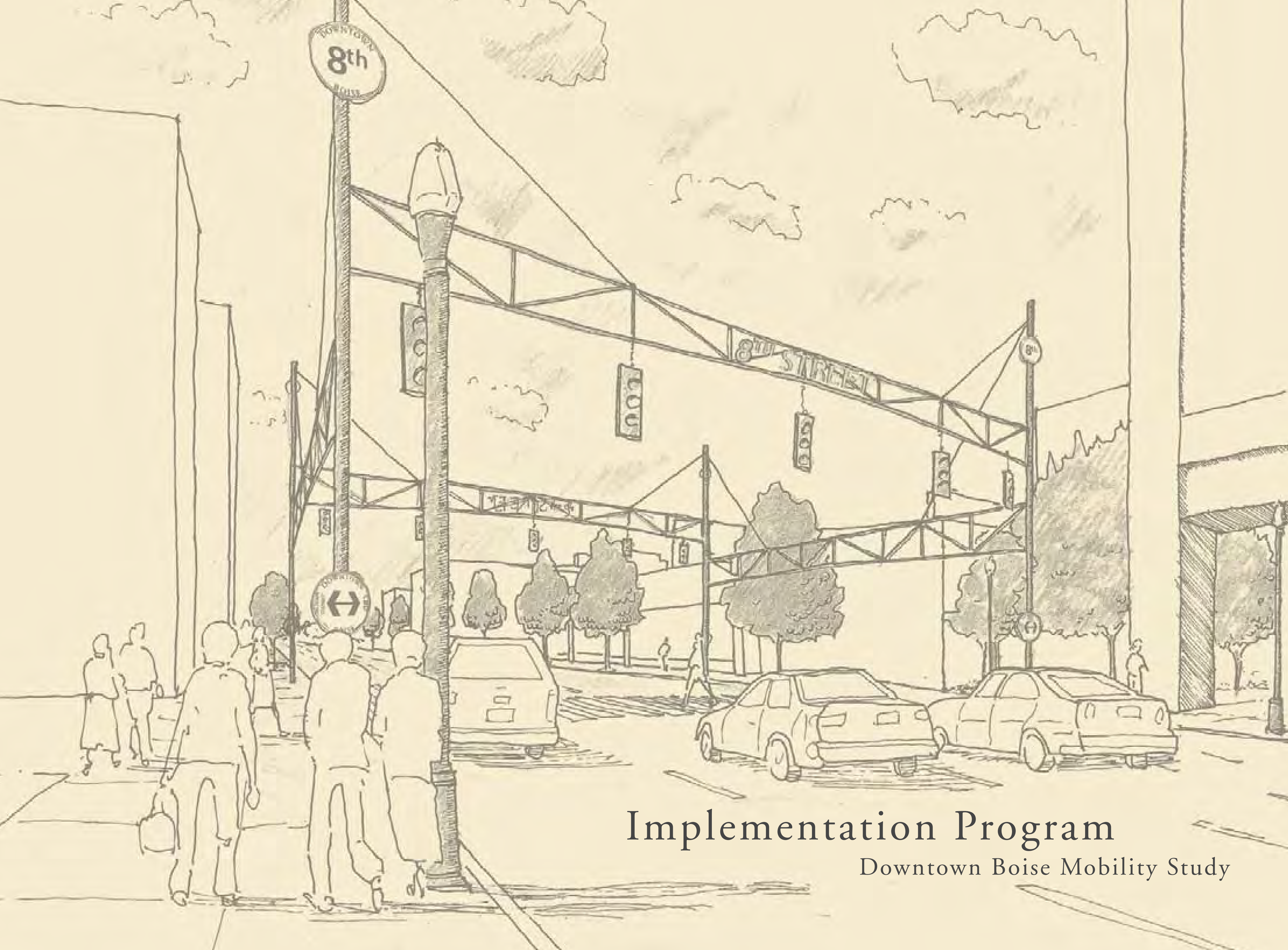


Implementation Program

Downtown Boise Mobility Study

ARUP

DOWNTOWN BOISE MOBILITY STUDY

October 2005

Sponsoring Agencies

Valley Regional Transit • Boise City • Capital City Development Corporation • Ada County Highway District

Boise State University • Idaho Transportation Department • Community Planning Association of Southwest Idaho

Produced By

ARUP

In association with

STRATEGIC ECONOMICS

Community Design + Architecture
REGION • CITY • NEIGHBORHOOD • BUILDING

Fehr & Peers
TRANSPORTATION CONSULTANTS

Meyer, Mohaddes Associates, Inc.

nelson\nygaard consulting associates

AMERICA

Spatial Dynamics

RBCI

Downtown Boise Mobility Study

Policy Committee

Pam Ahrens, Idaho Department of Administration
Ryan Armbruster, Elam & Burke
Bea Black, Boise School District
Rocky Bogert, Neighborhood Association Representative
Clay Carley, Old Boise LLC
Elaine Clegg, Councilmember, City of Boise
Ed Dahlberg, President, Saint Luke's Regional Medical Center
Mark Dunham, Boise State University
Bob Dutton, Boise School District
Susan Eastlake, Ada County Highway District (ACHD) Commissioner
Sonja Eau Claire, Bon-Macy's
Andy Erstad, Erstad Thornton Architects
Lance Evans, City of Boise
Jim Everett, Boise YMCA
Lynda Fischer, Ada County Treasurer
John Franden, ACHD Commissioner
Susan Grey, Idaho Power
Chuck Hedemark, Intermountain Gas
Dave Krick, Red Feather Lounge
Katey Levihn, ACHD
Terry Little, ACHD
Pam Lowe, Idaho Transportation Department (ITD) District 3
Mike McMillen, McMillen, Buckley Investment Company
Jerry Nielson, Idaho Power
Skip Oppenheimer, Oppenheimer Development
Jan Packwood, IDACORP
Charlie Rountree, ITD
Karen Sanders, Downtown Boise Association
Alan Shealy, Councilmember, City of Boise
Steven Semingson, Civic Partners
Jeff Shneider, CSHQA
Matt Stoll, Community Planning Association of Southwestern Idaho (COMPASS)
Steve Tollefson, First United Methodist Church
Charles Trainor, COMPASS
Nancy Vannorsdel, Boise Metro Chamber of Commerce
Chuck Winder, The Winder Company
Rick Yzaguirre, Commissioner, Ada County

Technical Committee

Keven Burnett, Downtown Boise Association
Elaine Clegg, Boise City Council
Daniel Foster, State of Idaho Facilities Services
Scott Frey, Federal Highway Administration
Ronald Kerr, ITD
Heather Mink, City of Boise
Matt Wilde, City of Boise
Maureen O'Keeffe, St. Luke's Regional Medical Center
Don Plum, NENA VP and Traffic Committee Chair
Catherine Sanchez, ACHD
Sarah Stobaugh, Boise School District
(Inclusive of PCT below)

Project Coordinating Team

Gerry Armstrong, Director, Ada County Development Services
Kelli Fairless, Valley Regional Transit
Dean Gundersen, Boise State University
Phil Kushlan, Capital City Development Corporation (CCDC)
Kathleen Marie Lacey, City of Boise
Joe Rosenlund, ACHD
Pam Sheldon, CCDC
Sue Sullivan, ITD
Toni Tisdale, COMPASS
Jay Witt, COMPASS
Aidan Hughes, Arup
Trent Lethco, Arup

Study Team

Produced by Arup

In association with
Community Design + Architecture
Fehr & Peers
Meyer Mohaddes Associates
Nelson/Nygaard
PTV America
R B C I
Spatial Dynamics
Strategic Economics

Table of Contents

Introduction iii

1. 2025 Growth Scenario 1

1.1 Growth Areas Map 1
Central Business District Area
Major Mixed-Use Infill Area
Mixed-Use Infill Areas
Infill Housing and Primarily Housing Emphasis Areas
Institutional Areas
Primarily Office Areas
Service Commercial/Professional Office Area

1.2 Land-Use Implementation Program 5
Short-Term Zoning Changes
Long-Term Strategic Implementation

2. Transportation System Plan 11

2.1 Programs 12

2.2 Projects 18
Automobile Access
Transit Enhancements
Bicycle Enhancements
Pedestrian Enhancements
Intelligent Transportation Systems Improvements
Freight Access

2.3 Phasing of Programs and Measures 26
Immediate Action Items (1-3 Years)
Short Term Items (3-5 Years)
Mid Term Items (5-10 Years)
Long Term Items (10-20 Years)

2.4 Specific Areas of Interest 28
Downtown Circulator
Multimodal Centers
The Front and Myrtle Couplet
Downtown Gateways

3. Strategic Implementation Plan 53

3.1 Agency Roles 53

3.2 Funding Plan 54
Federal Funding Opportunities
State Funding Opportunities
Local Funding Opportunities

4. Budget 65

Appendix A: Front and Myrtle Improvement Plan A-1

Appendix B: Summary of Traffic Analysis Results B-1

Introduction

Downtown Boise became a center of trade, commerce, government, arts, and education in the Treasure Valley in the late nineteenth century. This prominence continues today. Growth indicators reveal that the downtown area will continue to grow in the next 20 years. The Downtown Boise Mobility Study (DBMS) is based on an assessment of economic data, transportation forecasts, desired growth scenarios, suggested opportunity sites for near- and longer-term development, and zoning considerations. The study focuses on ensuring that the downtown area remains a vital and viable urban center within the Treasure Valley and the wider region.

Revitalization of downtown Boise began in earnest in 1985 with the approval of the Central District urban design plan. Investment of tax increment funds by CCDC in construction of The Grove plaza, brick sidewalks in the business core, and a system of public parking garages created a distinctive setting for private investment in office, retail and housing projects. The adoption of the 1993 Downtown Boise Plan, formation of the River Street-Myrtle Street and Westside Downtown urban renewal districts and numerous development partnerships and public improvement projects have fueled a new era of growth and prosperity of downtown Boise. The Downtown Boise Mobility Study anticipates transportation programs and projects that will support downtown's growth as a dynamic urban center well into the future. The intent of this study is to create an integrated, multimodal transportation system that includes not only auto travel, but also transit and a much -improved network of pedestrian and bicycle routes.

Vision For Downtown Boise

The Downtown Boise Mobility study has a vision for downtown that will retain Boise's position as the foremost urban center for business, government, culture, education, and urban living in the region. New land use policies and real estate developments will continue to keep downtown an attractive and exciting environment with a lively mix of uses—including housing, offices, retail, hotels and convention facilities, public spaces, and cultural, entertainment, research, and learning opportunities—where people and businesses thrive. Districts, activity centers and in-town neighborhoods will be connected by a well-designed and functional multimodal transportation system. This transportation system provides connections within downtown and to the surrounding region and offers users greater choice between different transportation modes. The system will provide safe, convenient, attractive, and economical access for all system users. The system will support the vision for growth and development in the downtown area.

Agencies and Roles

The DBMS is an unprecedented effort in Boise. Rather than being sponsored by one agency, the study was funded and overseen by seven different agencies. These agencies not only helped shape the study purposes and goals, but are responsible for implementing the elements of the DBMS.

Boise City

Boise City oversees long-range planning for Boise as a whole, and adopts and administers development regulations. Boise City will implement elements of the study related to land-use and development along with any enforcement measures recommended in the plan.

Capital City Development Corporation

Capital City Development Corporation (CCDC) is the redevelopment agency for Boise, which is responsible for long-range planning, development partnerships, and investing in public improvements within the urban renewal districts.

Valley Regional Transit

Valley Regional Transit is the regional transportation authority for Treasure Valley and the provider of transit services in the region. Valley Regional Transit will implement the transit elements of the plan, operate new transit services, and lead efforts to secure an ongoing source of public transportation funding.

Ada County Highway District

Ada County Highway District (ACHD) has jurisdiction over local streets and roads in Ada County, except state and federal highways. ACHD is responsible for implementing all measures on the road network. ACHD will also be responsible for the downtown travel demand forecasting model and VISSIM microsimulation model. Finally, ACHD is an important financial partner for funding plan projects.

Idaho Transportation Department

Idaho Transportation Department (ITD) has jurisdiction over state and federal highways, including Front and Myrtle streets. ITD is the lead agency for the pilot program of pedestrian enhancements on Front and Myrtle and will lead efforts to enhance pedestrian access and mobility on this important facility. ITD is also responsible for administering state and federal transportation funds in the State of Idaho and is another important financial partner for this plan.

Community Planning Association of Southwestern Idaho

Community Planning Association of Southwest Idaho (COMPASS) is the designated regional Metropolitan Planning Organization (MPO) responsible for developing the federally-required Long Range Transportation Plan and Metropolitan Transportation Improvement Program. While not a funding partner, COMPASS will be responsible for administering state and federal transportation planning funds in the Treasure Valley directed to the Boise Urbanized Area (UZA). COMPASS also developed and maintains the regional travel demand forecasting model upon which the downtown traffic model was developed.

Boise State University
The Boise State University (BSU), an educational, cultural, and employment center across the Boise River from downtown, is an important partner for general planning issues, and may play a key role in implementing the plan elements. BSU is also pursuing a multimodal center, which may help serve downtown commuters and students.

The Project Coordinating Team (PCT) was a group of representatives from the stakeholder agencies listed above. The PCT met regularly to oversee the development of the plan and provided guidance on all aspects of the study.

Valley Regional Transit served as the project manager for this study. The Project Coordinating Team oversaw all scoping, technical and policy elements of the plan.

Technical and Policy Groups - Met on an as-needed basis to review plan findings and provide technical and policy guidance. The Technical Group consisted of technical staff from stakeholder and implementation agencies. The Policy Group consisted of elected officials, members of various policy boards, neighborhood groups, business interests, and other project stakeholders.

Study Purpose

The intent of the DBMS is to create:

- An urban, pedestrian-oriented place characterized by ease of movement and freedom from congestion for people and manageable congestion for vehicles.
- A vibrant mix of uses including housing, offices, services, retail, restaurants, hotels, public spaces and cultural, entertainment, research, and learning opportunities.
- An interconnected, multimodal transportation system that sustains this environment and connects downtown Boise to the larger region.
- Connections between various activity centers within the study area such as the downtown core, the cultural district, the downtown neighborhoods, state capitol and state offices, Ada County Courthouse, Boise State University, Idaho Water Center, St. Luke's Regional Medical Center, and proposed multimodal stations through an effective transportation system and connections between downtown and inner neighborhoods such as the Near North End.

The DBMS ensures that the pattern of development and the transportation system serving that development are interrelated so that downtown Boise remains the heart of the community's social, cultural, business, governmental, and educational lives and provides a vital center to the region's economy.

Study Goals

The goals outlined below guided the development of the transportation system plan to achieve the vision for downtown Boise.

Goal 1
Create a long-term, 20-year land-use vision and mobility plan so that downtown Boise develops to be the foremost urban center for business, government, culture, education, and urban living in the region.

Goal 2
Maximize transportation system efficiency and develop a downtown transportation system that includes and integrates a variety of travel modes and promotes the use of alternatives to the automobile.

Goal 3
Link sub-districts, activity centers, and the parking supply in downtown Boise through a well-designed, functional transportation system.

Goal 4
Identify how to enhance the performance of the downtown street system and improve mobility while at the same time making the system compatible with a people-oriented, urban-intensity downtown.

Goal 5
Design the downtown transportation system so it effectively connects to the current and future regional transportation network.

Goal 6
Develop a practical strategy for implementing the downtown mobility plan, which includes specific action steps, responsible parties, a timetable for accomplishment, and sources of funding.

Components of the Downtown Boise Mobility Study

In order to help achieve the study purposes and goals, several analyses and components were developed and used in the creation of the Implementation Program.

The study elements include:

- Land use assessment – Current land use planning practice in Boise City and recommended strategies for improving land use planning.
- Market analysis – Office, residential and retail opportunities in downtown Boise.
- 2025 Growth Forecast - The extent, nature and location of growth in downtown between now and 2025.
- Downtown Traffic Models – Synchro and VISSIM microsimulation models were developed to provide an assessment of existing and future traffic conditions.
- Transportation System Evaluation – A comprehensive evaluation of all travel modes to determine transportation infrastructure needs now and in the future.

- Strategic Implementation Program – A comprehensive list of projects and programs to strengthen and expand the transportation network in downtown to meet the needs of travelers now and in the future.

PUBLIC INVOLVEMENT

Public involvement was a crucial element of the study: the feedback gained from the dialogue with the public influenced the findings of the study and assisted with the development of the system plan. Public involvement efforts included:

On-the-street surveys – More than 400 people were interviewed in downtown Boise to learn more about how people travel to and around downtown, when they choose to come downtown, and how often they visit downtown.

Focus groups, open houses, and hosted meetings were used to test certain plan concepts such as a person's willingness to live downtown or try alternative forms of transportation.

Focus groups - Two focus groups were held to test plan concepts such as the downtown circulator and to verify the transportation system evaluation.

Open House and Hosted Meetings – While the technical work of the plan is complete, the public process is underway and will continue. A two-day open house was held in January, 2005, and a series of hosted meetings was initiated throughout the study area to inform the public about findings and recommendations. These meetings provided opportunities for the public to provide input into the plan. Sponsoring agencies will also consider action on the Downtown Boise Mobility Study in Fall-Winter 2005-6 at meetings of their elected or appointed boards. Public involvement and engagement will continue to be important as the agencies move to an implementation phase. Recommendations such as changes to the design and operation of streets will involve public meetings on the specific proposals before decisions are made to proceed with these measures.

The goals and objectives of the DBMS were validated repeatedly through the focus groups, hosted meetings, and open house forums. There is broad-based support among the community and the PCT for increased transit service, ease of pedestrian mobility, bike paths and making parking available outside the downtown core. A major emphasis of the DBMS is to create a multimodal transportation system and continue to improve pedestrian mobility throughout downtown. The PCT did review the one-way street system in downtown Boise and believes at this point in time the system meets the transportation needs of downtown.

Plan Organization

There are four main sections to the Strategic Implementation Program:

Chapter 1: 2025 Growth Scenario

The 2025 Growth Scenario provides background about future growth and introduces a land-use implementation program. The program offers a series of steps to achieve the preferred growth scenario for the DBMS and, correspondingly, to create a more vibrant and walkable downtown.

Chapter 2: The Transportation System Plan
The Transportation System Plan describes the programs and projects recommended to address issues identified in the Transportation System Evaluation. It also contains detailed discussions and recommendations for each of the three specific areas of interest.

Chapter 3: Strategic Implementation Program
The Strategic Implementation Program includes sections on implementation, a capital improvement program, and funding.

Chapter 4: Budget
The Budget is a detailed cost breakdown of the recommended project components.

Two other technical reports are available upon request from Valley Regional Transit:

- Level of Service Policies and Recommendations.
- A comprehensive list of measures that were evaluated for the Front and Myrtle couplet.

Moving Forward

In the years ahead, Boise City must work strategically with regional and state transportation agencies to ensure that the transportation system is able to accommodate the increasing demands. The data suggest the system, as it is currently designed, is reaching its limits and that transportation choices downtown and throughout the region must be expanded.

Some key questions remain to be answered: lead agency must be identified, finding available funding sources, building viable network of transit services, and changes to local zoning codes and planning documents must be implemented. These steps and many others will determine the ultimate success of the DBMS.

Many of the projects identified in this plan will require expanding the funding options for transportation projects. Whether expanding local bus service, providing new crosswalks and signals, or studying the feasibility of a downtown circulator, more local resources are needed to implement projects downtown and region-wide. Boise has grown to the point where new approaches to transportation project development are needed. Working in partnership with Valley Regional Transit, COMPASS, ACHD, and ITD, Boise City can find regional solutions that offer benefit to the city and the Treasure Valley as a whole.

This plan is the beginning of the effort to better integrate transportation and land-use in Boise City and to ensure that downtown Boise is a place that is true to the ambitious goals and objectives that guide the development of this study.

Executive Summary

Downtown Boise Mobility Study

ARUP

DOWNTOWN BOISE MOBILITY STUDY

October 2005

Sponsoring Agencies

Valley Regional Transit • Boise City • Capital City Development Corporation • Ada County Highway District

Boise State University • Idaho Transportation Department • Community Planning Association of Southwest Idaho

Produced By

ARUP

In association with

Strategic Economics

Community Design + Architecture
Region • City • Neighborhood • Building

Fehr & Peers
Transportation Consultants

Meyer, Mohaddes Associates, Inc.
An Iteris Company

Nelson\Nygaard
consulting associates

PTV America

Spatial Dynamics

RBCI

Downtown Boise Mobility Study

Policy Committee

Pam Ahrens, Idaho Department of Administration
Ryan Armbruster, Elam & Burke
Bea Black, Boise School District
Rocky Bogert, Neighborhood Association Representative
Clay Carley, Old Boise LLC
Elaine Clegg, Councilmember, City of Boise
Ed Dahlberg, President, Saint Luke's Regional Medical Center
Mark Dunham, Boise State University
Bob Dutton, Boise School District
Susan Eastlake, Ada County Highway District (ACHD) Commissioner
Sonja Eau Claire, Bon-Macy's
Andy Erstad, Erstad Thornton Architects
Lance Evans, City of Boise
Jim Everett, Boise YMCA
Lynda Fischer, Ada County Treasurer
John Franden, ACHD Commissioner
Susan Grey, Idaho Power
Chuck Hedemark, Intermountain Gas
Dave Krick, Red Feather Lounge
Katey Levihn, ACHD
Terry Little, ACHD
Pam Lowe, Idaho Transportation Department (ITD) District 3
Mike McMillen, McMillen, Buckley Investment Company
Jerry Nielson, Idaho Power
Skip Oppenheimer, Oppenheimer Development
Jan Packwood, IDACORP
Charlie Rountree, ITD
Karen Sanders, Downtown Boise Association
Alan Shealy, Councilmember, City of Boise
Steven Semingson, Civic Partners
Jeff Shneider, CSHQA
Matt Stoll, Community Planning Association of Southwestern Idaho (COMPASS)
Steve Tollefson, First United Methodist Church
Charles Trainor, COMPASS
Nancy Vannorsdel, Boise Metro Chamber of Commerce
Chuck Winder, The Winder Company
Rick Yzaguirre, Commissioner, Ada County

Technical Committee

Keven Burnett, Downtown Boise Association
Elaine Clegg, Boise City Council
Daniel Foster, State of Idaho Facilities Services
Scott Frey, Federal Highway Administration
Ronald Kerr, ITD
Heather Mink, City of Boise
Matt Wilde, City of Boise
Maureen O'Keeffe, St. Luke's Regional Medical Center
Don Plum, NENA VP and Traffic Committee Chair
Catherine Sanchez, ACHD
Sarah Stobaugh, Boise School District
(Inclusive of PCT below)

Project Coordinating Team

Gerry Armstrong, Director, Ada County Development Services
Kelli Fairless, Valley Regional Transit
Dean Gundersen, Boise State University
Phil Kushlan, Capital City Development Corporation (CCDC)
Kathleen Marie Lacey, City of Boise
Joe Rosenlund, ACHD
Pam Sheldon, CCDC
Sue Sullivan, ITD
Toni Tisdale, COMPASS
Jay Witt, COMPASS
Aidan Hughes, Arup
Trent Lethco, Arup

Study Team

Produced by Arup

In association with
Community Design + Architecture
Fehr & Peers
Meyer Mohaddes Associates
Nelson/Nygaard
PTV America
R B C I
Spatial Dynamics
Strategic Economics

Executive Summary

The Downtown Boise Mobility study has a vision for downtown that will retain Boise's position as the foremost urban center for business, government, culture, education, and urban living in the region. New land use policies and real estate developments will continue to keep downtown an attractive and exciting environment with a lively mix of uses—including housing, offices, retail, hotels and convention facilities, public spaces, and cultural, entertainment, research, and learning opportunities—where people and businesses thrive. Districts, activity centers and in-town neighborhoods will be connected by a well-designed and functional multimodal transportation system. This transportation system provides connections within downtown and to the surrounding region and offers users greater choice between different transportation modes. The system will provide safe, convenient, attractive, and economical access for all system users. The system will support the vision for growth and development in the downtown area.

Introduction

The Downtown Boise Mobility Study (DBMS) is charting a future of sustained growth and vitality for downtown Boise through 2025. This unprecedented effort includes six agencies and multiple stakeholders. The study integrates assessments of land use, economic, transportation and land use conditions to frame a future that builds on existing strengths and supports growth to achieve a vibrant and vital downtown that includes business, arts and entertainment, living, education, and civic uses.

The study elements include:

- Land use assessment – Current land use planning practice in Boise City and recommended strategies for improving land use planning.
- Market analysis – Office, residential and retail opportunities in downtown Boise.
- 2025 Growth Forecast - The extent, nature and location of growth in downtown between now and 2025.
- Downtown Traffic Models – Synchro and VISSIM microsimulation models were developed to provide an assessment of existing and future traffic conditions.
- Transportation System Evaluation – A comprehensive evaluation of all travel modes to determine transportation infrastructure needs now and in the future.
- Strategic Implementation Program – A comprehensive list of projects and programs to strengthen and expand the transportation network in downtown to meet the needs of travelers now and in the future.

Study Purpose

The DBMS makes recommendations that support the creation of:

- Urban, pedestrian-oriented places characterized by ease of movement for people and manageable congestion for vehicles.
- Vibrant mixes of land uses including housing, offices, services, retail, restaurants, hotels, public spaces and cultural, entertainment, research, and learning opportunities.
- Interconnected, multimodal transportation systems connecting downtown Boise to the larger region.
- Connections between various activity centers within the study area such as the downtown core, the cultural district, the downtown neighborhoods, state capitol and state offices, Ada County Courthouse, Boise State University, Idaho Water Center, St. Luke's Regional Medical Center, and proposed multimodal centers through an effective transportation system and connections between downtown and inner neighborhoods such as the North End and East End.

The DBMS offers innovative ways to sustain the downtown community now and in the future by anticipating and addressing impacts that usually accompany growth, and recommending a series of transportation improvements to sustain a vibrant and livable community.

Photo 1.1 Courthouse Square Apartments

Photo 1.2 Main Street in Old Boise with curbside parking

Photo 1.3 8th Street in Cultural District

Photo 1.4 Policy Group workshop

Photo 1.5 Downtown Circulation Working Group

DBMS Study Goals

At the beginning of the study, time and attention was focused on creating a set of goals to serve as a framework for developing the plan. The goals shaped the overall content of the plan and helped guide decisions when tradeoffs were necessary between system elements. The complete set of goals with objectives are provided in Appendix A, and the overall goals are provided below:

Goal 1:
Create a long-term, thirty-year land use vision and mobility plan so that downtown Boise develops to be the foremost urban center for business, government, culture, education and urban living in the region.

Goal 2:
Maximize transportation system efficiency and develop a downtown transportation system that includes and integrates a variety of travel modes, and promotes the use of alternatives to the automobile.

Goal 3:
Link sub-districts, activity centers and the parking supply in downtown Boise through a well-designed, functional transportation system.

Goal 4:
Identify how to enhance the performance of the downtown street system and improve mobility while at the same time make the system compatible with a people-oriented, urban-intensity downtown.

Goal 5:
Design the downtown transportation system so it effectively connects to the current and future regional transportation network.

Goal 6:
Develop a practical strategy for implementing the downtown mobility plan, which includes specific action steps, responsible parties, a timetable for accomplishment, and sources of funding.

The Public and the Process

The Project Coordinating Team (PCT) was a group of representatives from stakeholder agencies. The PCT met regularly to oversee the development of the plan and provided guidance on all aspects of the study. The PCT members represented each agency responsible for plan implementation:

- Ada County Highway District
- Boise City
- Boise State University
- Capital City Development Corporation
- Community Planning Association of Southwestern Idaho
- Idaho Transportation Department
- Valley Regional Transit (formerly known as ValleyRide)

Valley Regional Transit served as the project manager for this study. The Project Coordinating Team oversaw all scoping, technical and policy elements of the plan.

Technical and Policy Groups - Met on an as-needed basis to review plan findings and provide technical and policy guidance. The Technical Group consisted of technical staff from stakeholder and implementation agencies. The Policy Group consisted of elected officials, members of various policy boards, neighborhood groups, business interests, and other project stakeholders.

Public involvement was a crucial element of the study. The feedback gained from the dialogue with the public influenced the findings of the study and assisted with the development of the system plan. Public involvement efforts included:

On-the-street surveys – More than 400 people were interviewed in downtown Boise to learn more about how people travel to and around downtown, when they choose to come downtown, and how often they visit downtown.

Focus groups, open houses, and hosted meetings were used to test certain plan concepts such as a person's willingness to live downtown or try alternative forms of transportation.

Focus groups - Two focus groups were held to test plan concepts such as the downtown circulator and to verify the transportation system evaluation.

Open House and Hosted Meetings – While the technical work of the plan is complete, the public process is underway and will continue. A two-day open house was held in January 2005, and a series of hosted meetings was initiated throughout the study area to inform the public about findings and recommendations. These meetings provided opportunities for the public to provide input into the plan. Sponsoring agencies will also consider action on the Downtown Boise Mobility Study in Fall-Winter 2005-6 at meetings of their elected or appointed boards. Public involvement and engagement will continue to be important as the agencies move to an implementation phase. Recommendations such as changes to the design and operation of streets will involve public meetings on the specific proposals before decisions are made to proceed with these measures.

The goals and objectives of the DBMS were validated repeatedly through the focus groups, hosted meetings, and open house forums. There is broad-based support among the community and the PCT for increased transit service, ease of pedestrian mobility, bike paths and making parking available outside the downtown core. A major emphasis of the DBMS is to create a multimodal transportation system and continue to improve pedestrian mobility throughout downtown. The PCT did review the one-way street system in downtown Boise and believes at this point in time the system meets the transportation needs of downtown.

Comments from Public Outreach Activities

Below is a summary of comments received from the public outreach activities in Winter-Spring 2005 (by mode). A more complete record of public comments is available from Valley Regional Transit. This is a summary and is not intended to reflect the breadth of comments received. It is provided for illustrative purposes only. Comments received included:

- Increase bus service – coverage and hours
- Consider revising one-way streets to two-way
- Extend and connect bike paths

Photo 1.6 The Plaza on the Grove

Photo 1.7 8th Street

Photo 1.8 Buses departing on Idaho

- Consider parking area outside downtown with shuttle service to downtown
- Increase number of pedestrian-only traffic signals (all way walk)
- Turn bus lanes into traffic lanes after hours when buses aren't running
- Like to see the government office near Capitol Mall become a pedestrian campus (no autos)
- Model after Denver's 16th Street Mall

Downtown Circulator

- Many comments were supportive
- Others were not sure it's necessary, because there is more of a need to bring people from outlying areas into downtown.
- Need light rail from Canyon County into Boise City with several stops in Boise

The comments received during the open house will be carried forward into the Downtown Circulator feasibility study.

Multimodal Center

- Should be moved from proposed location shown at open house
- Many comments were supportive
- Others were not sure it's necessary

Improvements to Front & Myrtle streets

- Should put these streets underground or build pedestrian bridges/tunnels to increase pedestrian/cyclist safety
- Should reduce speed limit
- Should beautify entrances

Enhancements to Front and Myrtle have already begun. The DBMS did not look at the feasibility of putting Front and Myrtle underground because it was beyond the scope of this study. Any changes to Front and Myrtle would require further analysis by Idaho Transportation Department.

Plan Framework

This study rests on the foundation of several other plans crafted for downtown and its surrounding neighborhoods. The main plans that guided this effort include:

- Boise Comprehensive Plan (1997)
- 1993 Downtown Plan
- Central District Urban Design Plan
- River Street-Myrtle Street Urban Design Plan
- Westside Downtown Master Plan
- Destination 2025
- Valley Regional Transit Transportation Development Plan
- Foothills Policy Plan
- Foothills Transportation Plan

Study Structure

The study is presented in three documents:

1) EXECUTIVE SUMMARY

2) TRANSPORTATION SYSTEM EVALUATION

- Introduction
- Automobiles
- Transit
- Bicycles
- Pedestrians
- Transportation Demand Management
- Intelligent Transportation Systems
- Freight

3) IMPLEMENTATION PROGRAM

- 2025 Growth Scenario
- Transportation System Plan

    Programs
    Projects
    Phasing of Programs and Measures
    Specific Areas of Interest
    Downtown Circulator
    Multimodal Centers
    The Front and Myrtle Couplet
    Downtown Gateways

- Strategic Implementation Plan

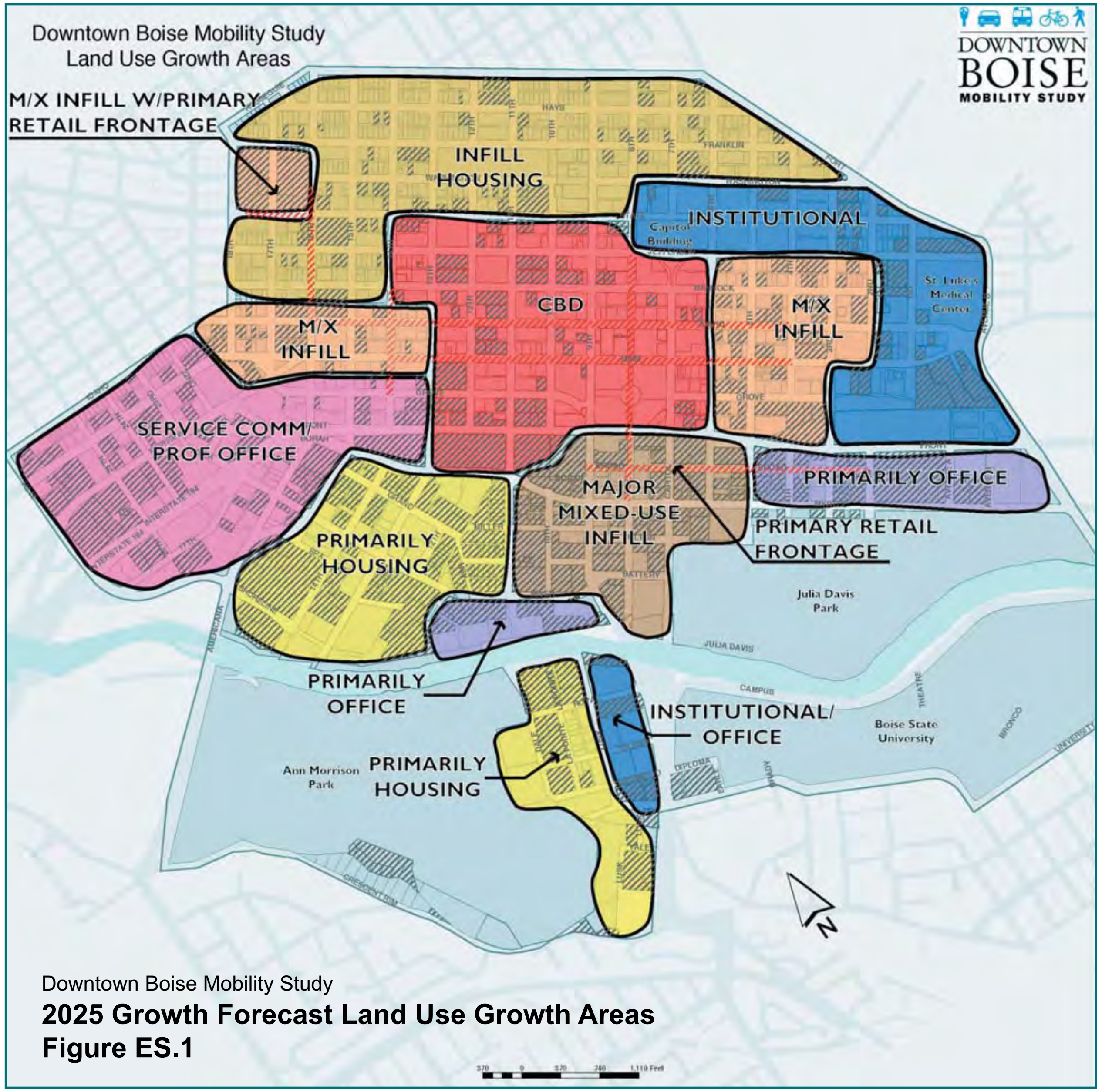
    Agency Roles
    Funding Plan

- Budget

The technical studies are:

- Transit Case Studies
- Land Use Planning Assessment
- Downtown Market Analysis
- Level of Service Assessment
- Downtown Traffic Analysis
- Public Involvement Summary

The following sections summarize the key findings and recommendations of the study based on the two main themes: land use (including the market analysis and growth forecast) and transportation.



Downtown Boise Mobility Study

2025 Growth Forecast Land Use Growth Areas

Figure ES.1

Land Use

REGIONAL, ECONOMIC AND DEMOGRAPHIC TRENDS

Since 1990, the Boise Metropolitan Statistical Area has seen tremendous growth in employment and population. Job growth was the greatest in the manufacturing and service employment sectors. Boise City itself saw tremendous growth in population between 1990 and 2000, adding 60,000 new residents, and increasing the size of the community from 126,685 people in 1990 to 185,787 in 2000 – growing nearly 47 percent.

Downtown Boise has experienced considerable change over the past several years, including new housing and office development. If this pace continues, downtown will become a more significant part of the Ada County housing market. Capital City Development Corporation and Boise City are pursuing aggressive plans for bringing new housing and creating a mixed-use downtown. The beneficial effects of this effort will be two-fold: 1) more people will be able to live closer to their workplaces, which increases their commute mode choices to include transit, walking, and bicycling; and 2) the city center will become more vibrant because of increased demand for restaurants, entertainment, and retail, which operate in the evenings and on weekends in addition to workdays.

Along with these efforts, Ada County Highway District (ACHD), Idaho Transportation Department (ITD) and Valley Regional Transit will begin implementing a package of transportation investments to create a multimodal transportation network to support this dynamic urban environment. The network will connect housing, retail, entertainment and cultural opportunities, services, general office and educational and governmental uses during evenings and weekends in addition to workdays.

LAND USE AND DEVELOPMENT

Planning for Boise City's downtown area has shown a marked progression over the last 10 years. Early plans were largely conceptual in nature, while more recent efforts have been targeted toward specific mixes of uses and neighborhood/district development concepts, and are increasingly focused on specific measures and detailed implementation strategies. The vision for downtown is clear. Continuing to implement this vision is an ongoing challenge.

The multiple challenges moving forward include:

- Ensuring that new transportation improvements (such as the proposed downtown circulator) can be coordinated with existing land use plans.
- Updating land use plans to reflect new improvements to the downtown transportation infrastructure.
- Creating investment and economic development tools to stimulate development supporting the vision for downtown.
- Clearly communicating a convincing vision for a dynamic mixed-use downtown.
- Providing consistency between the long term vision for downtown and the plans for the individual subdistricts.

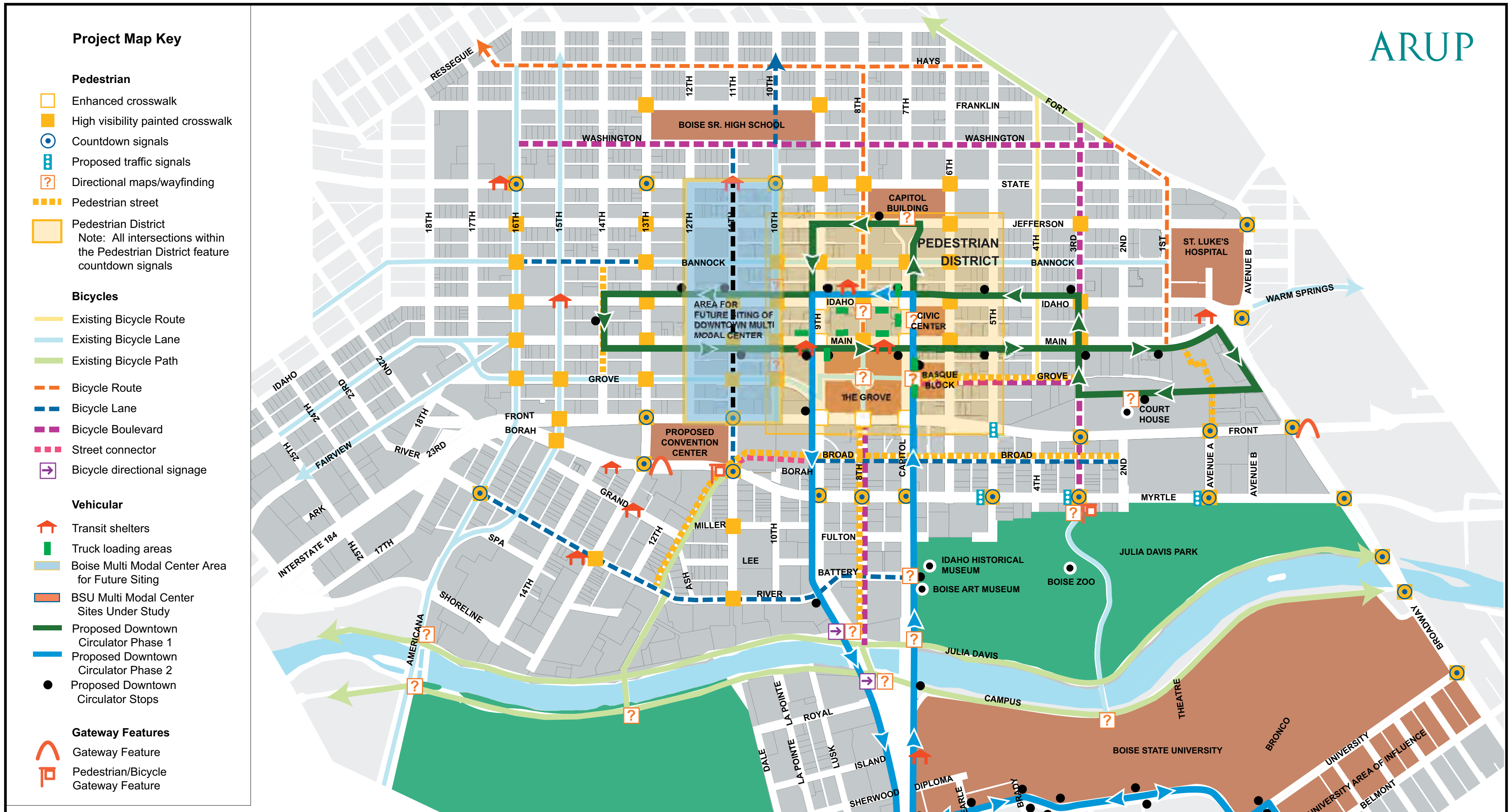
FUTURE GROWTH SCENARIO

The 2025 land use scenario envisions an increase of 4.8 million square feet of office space, 500,000 square feet of retail, and 4,300 additional housing units throughout downtown. These increases, combined with the recommendations of the Transportation System Plan, will help define downtown Boise City as the foremost urban center for business, government, culture, education, and urban living in the region.

Rather than have future development occur in a piecemeal fashion, growth should be targeted to priority growth areas as outlined on the Land Use Growth Areas map. The map indicates the pattern of land use types desired in downtown. Discussed in greater detail in the Implementation Program, the adjacent map (Figure ES.1) illustrates what type of growth is preferred in the different areas of downtown over the next 20 years.

The 2025 land use scenario will require concerted implementation efforts in both the near and long term. In the near term, it is recommended that efforts be focused on removing existing barriers to transit- and pedestrian-oriented development. In the long-term, efforts should be concentrated on strategic planning, public investment and attracting private investment that advances the goals of this study. These efforts will range from creating design guidelines for specific types of development to analyzing specific site development opportunities. The long-term implementation efforts should be oriented around key catalyst sites such as the Westside Downtown Mixed-Use Infill Area, housing areas, and the Front Street/Myrtle Street corridor.

Photo 1.9 Idaho Street Transit Center



Downtown Boise Mobility Study
Implementation Program Project Map
Figure ES.2

Transportation

With the significant growth that is forecast, there will be an accompanying increase in travel demand. Unless a wider range of transportation choices are available, particularly for the commuter, this demand largely translates into increases in automobile traffic. One proxy for measuring traffic growth is to study the increase in vehicle miles traveled (VMT), that is, the total number of miles traveled by all vehicles in an area during a period of time. In downtown Boise between 2000 and 2025, during peak travel hours, VMT is forecast to increase by 74 percent (from 8,738 to 15,229 miles) if current trends prevail. Although the available models are not able to predict increases in travel demand across all modes, it is reasonable to assume that travel by other modes might increase by a similar proportion in the same period.

The projections for infill development will put pressure on the existing transportation infrastructure. The increased density, mixed uses, and activity will make downtown more vibrant and make travel by alternative modes more attractive. At the same time, however, the high rate of growth in demand for travel in downtown Boise will result in significant increases in roadway congestion if improvements are not made.

Roadway congestion will be concentrated on the major roadway gateway corridors (e.g., Front, Myrtle, Capitol, Ninth and Broadway), several of which already experience relatively poor levels of service. The transportation system plan in the study includes recommendations to address these issues. This projected congestion also underscores the need to also provide improvements for alternative modes to help limit the growth of traffic during peak hours when demand is heaviest.

TRANSPORTATION SYSTEM EVALUATION/ IMPLEMENTATION PROGRAM

The Transportation System Evaluation assessed the transportation system and supporting programs in downtown Boise by how well the system performs today and how well the system is positioned to meet the future needs. The system evaluation was conducted across modal categories. The findings are included in a separate document, the Transportation System Evaluation Report, and the resulting recommendations for implementation are reported in the Implementation Program. A summary of key findings and recommendations is provided below, and the project map on the facing page (Figure ES.2) illustrates where the improvements will take place.

AUTOMOBILE

- While there is growing interest in supporting alternative modes and different uses of roadway space downtown, automobiles will continue to function as the primary form of transportation for most people who travel to downtown from other parts of the region.
- Even if other modes are more available, the expected increase in automobile traffic to and from downtown is such that the major access routes downtown must emphasize automobile travel.
- Carpooling represents the most widely used form of alternative transportation in the region, underscoring the importance of the private car.
- Most downtown streets will provide adequate capacity for future growth, although the number of intersections projected to operate with poor Level of Service (LOS E or F - see sidebar on Page 30 of the Implementation

Photo 1.10 Myrtle Street looking west

Photo 1.11 Capitol Terrace Garage

Photo 1.12 Bike racks on buses


Photo 1.13 Bike lanes and high visibility crosswalks

Photo 1.14 Bike boulevard marking

Program for LOS category descriptions) will increase significantly without improvements or shifts to other travel modes. Of the 104 intersections studied, 11 currently operate with LOS E or F in the afternoon peak hour. In 2025 without improvements, this number is projected to increase to 41 intersections. By simply optimizing signal timings, it is projected that number of intersections with poor operation can be reduced to from 41 to 31. For these locations, additional investigation has been performed to determine how to best accommodate future demand.

- Congestion will tend to be concentrated on the major gateway corridors to downtown Boise. These roads include Front, Myrtle, Capitol, 9th, State and Broadway.
- The Front and Myrtle couplet plays a key role as a high-capacity automobile route to and from downtown, and helps relieve nearby streets of additional automobile traffic. This corridor is the primary access to I-184 and offers cross-town mobility. These streets also serve new adjacent development. Physical and operational improvements have been identified for this corridor that would allow it to serve future traffic demand while also providing a more attractive, people-friendly environment along its edges and at intersections. Improvements allowing for enhanced north-south connectivity across the couplet are also recommended. Additional study of this corridor is suggested to verify the projected growth forecasts and feasibility of the proposed improvements.
- Mitigation measures at other congested locations include modifications ranging from revised signal timing and changes to existing lane configuration, to increasing roadway capacity by adding traffic lanes. Corridor studies are recommended for particularly congested routes (Broadway, Front and Myrtle, Capitol, 9th) in order to verify growth projections and develop a comprehensive improvement plan that also considers the needs of different modes and impacts on adjacent properties.
- State Street and Capitol Boulevard provide important automobile links through downtown, but also have the potential to serve as routes for Bus Rapid Transit services.
- Measures to encourage the use of appropriate but underutilized streets should be investigated to help divert traffic from congested locations. For example, directional signage and improvements to key links could encourage more drivers to divert to the Main and Fairview Couplet from Front and Myrtle.

Key projects include:

Implementation of optimized signal timing plans as conditions change over time, changes to existing lane configuration (without adding lanes) or new vehicle lanes at specific intersections, installation of real-time parking information systems, corridor studies including additional development of the Front and Myrtle Improvement Program (after results from the Communities in Motion project and analyses by ITD are available), and implementation of the Front and Myrtle Improvement Program.

TRANSIT

- The ability to expand transit services to meet the needs of the downtown community rests on the ability of Valley Regional Transit to grow the pool of transportation funding to support operations and capital improvements.
- Valley Regional Transit services do not currently meet the needs for downtown circulation or the needs of regional commuters coming to downtown.
- While current operations on Main and Idaho are adequate for Valley Regional Transit, an interim transit facility would enhance Valley Regional Transit operations while also responding to needs and interests of local merchants.
- Implementation of Valley Regional Transit's Regional Operations and Capital Improvement Plan (ROCIP) is necessary to meet the transportation needs of the downtown community.

Key projects include:

Securing a dedicated and ongoing source of transit and transportation funding; implementing the Regional Operations and Capital Improvement Plan (ROCIP); establishing an interim transit center; establishing two multimodal centers - one downtown and one at Boise State University; implementing the Valley Regional Transit bus stop plan; initiating an attractive shuttle-based downtown circulator service; and conducting an alternatives analysis and preliminary engineering for a future rail- or streetcar-based downtown circulator service.

BICYCLE

- Where available, Boise offers high-quality cycling facilities and environments. The Boise Greenbelt and the 15th and 16th street corridors are two such examples.
- Most downtown destinations are quickly and easily reached by bicycle. Bicycling can offer a faster and more convenient form of mobility in the downtown area than driving or transit.
- The bicycle network is in varying degrees of repair.
- The bicycle network is limited and in need of expansion to serve existing and new development and to better connect existing facilities.
- A bicycle and pedestrian advisory committee is needed to prioritize bicycling needs in downtown and throughout Boise City.
- Bicyclist education and training is needed to encourage cyclists to ride on street rather than on sidewalks.

Key projects include:

Establishing a Bicycle and Pedestrian Advisory Committee for Boise City; applying a bicycle boulevard treatment to 3rd, 8th and Washington as discussed in the Transportation System Evaluation; investigating the feasibility of adding bicycle lanes to River from Capitol to Americana; adding bicycle lanes on 11th; adding "Share the Road" signs along bike routes, and expanding bicycle parking facilities in the downtown pedestrian district.

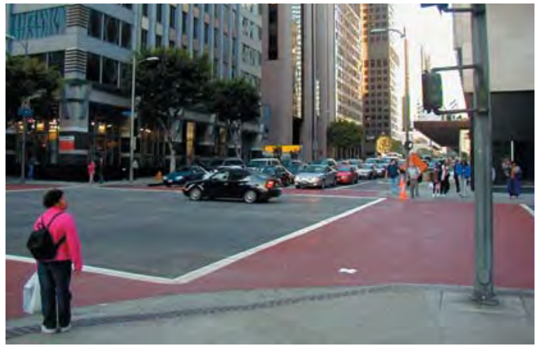


Photo 1.15 High-quality crosswalks in downtown Los Angeles, CA

Photo 1.16 Pedestrian countdown signals

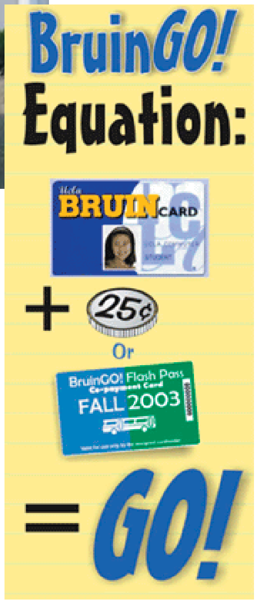


Photo 1.17 Student bus pass program

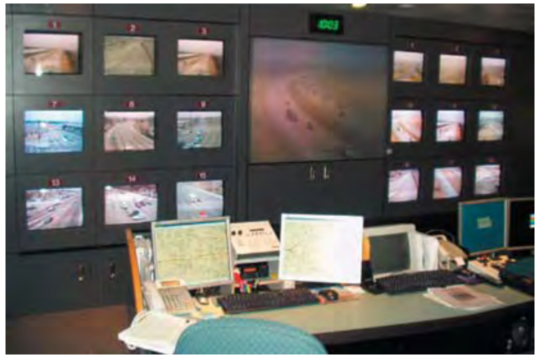


Photo 1.18 ITD/ACHD Traffic Management Center

Photo 1.19 Truck using loading bay extending into travel lane

PEDESTRIANS

- There are several high quality pedestrian facilities (attractive walking environments, curb extensions, pedestrian scaled development, etc.) in the study area from the 8th Street corridor to the Pioneer Walkway. Downtown strategic plans identify an adequate supply of pedestrian facilities to accommodate new growth.
- Urban design guidelines requiring street-oriented retail and lot line development in the downtown core create a high-quality pedestrian environment.
- Effects of design guidelines in the River/Myrtle area are having a positive effect as evidenced by the Courthouse corridor.

Key projects include:

Expanding the downtown pedestrian district; implementing pedestrian improvements at key locations on the Front and Myrtle couplet by installing high-visibility crosswalks; installing urban-oriented, enhanced crosswalks; pedestrian countdown signals (pending results of pilot program on Front/Myrtle); and pedestrian-oriented street signs at select locations.

TRANSPORTATION DEMAND MANAGEMENT

- The downtown Boise area already benefits from some Transportation Demand Management (TDM) activities through ACHD Commuteride and continued strong collaboration with this organization is crucial to the health and vitality of downtown Boise.
- The costs for parking in the study area are relatively low, making it difficult to encourage employees to try alternative modes.
- A student bus pass program has been established for commuters to Boise State University.
- A growing vanpool program serves downtown and the region.

Key projects include:

Jointly establishing a Downtown Trip Reduction Coordinator; expanding the student bus pass program; considering making the cost for parking more equal to the cost for transit; and continuing to offer discounted bus passes to employees of government agencies.

INTELLIGENT TRANSPORTATION SYSTEMS

- Intelligent Transportation Systems (ITS) applications allow ACHD to make adjustments remotely to improve system operations, such as adjusting signal timing and dispatching emergency personnel.
- ACHD replaced and upgraded all of the signal controllers in the downtown core two years ago. This work dramatically improved timing plan options at all locations.
- ACHD has added surveillance cameras in the downtown area. The agency continues to expand the network of cameras to assist in traffic management and emergency response. The cameras allow Traffic Management Center personnel to visually monitor and verify conditions and take appropriate action more confidently and rapidly.

Key projects include:

Updating signal timing plans; supporting ITD and ACHD in the creation of a new Transportation Management Center; and installing real-time parking information at key downtown gateways.

FREIGHT

- Large trucks, both moving and parked, exacerbate congestion and related safety issues.
- Service deliveries to bars and restaurants account for a significant portion of the truck traffic and associated parking issues in the downtown area.
- Trucks using the bus lanes on Idaho and Main Streets for deliveries generate conflicts with transit operations. Delivery drivers sometimes park illegally in the bus lanes of the downtown transit mall preventing buses from accessing the assigned stops.
- The freight pullouts are not large enough. Trucks are too large to fit into the pullouts and encroach on active traffic lanes, creating safety hazards.
- The freight pullouts are not being used efficiently. Often passenger automobiles are using the freight pullouts that do exist.

Key projects include:

Expanding parking enforcement activities during peak hours; implementing new design standards for loading bays; and establishing a truck route system.

Specific Areas of Interest

While the DBMS covers a broad range of issues and projects affecting downtown Boise, there are three key project areas that call for special attention and focus: Front and Myrtle Couplet, downtown circulation, and multimodal centers. The projects represent major investments in transportation infrastructure downtown. Each is designed to fit both transportation and economic development objectives and each will exert a tremendous influence on the regional transportation network and the downtown community.

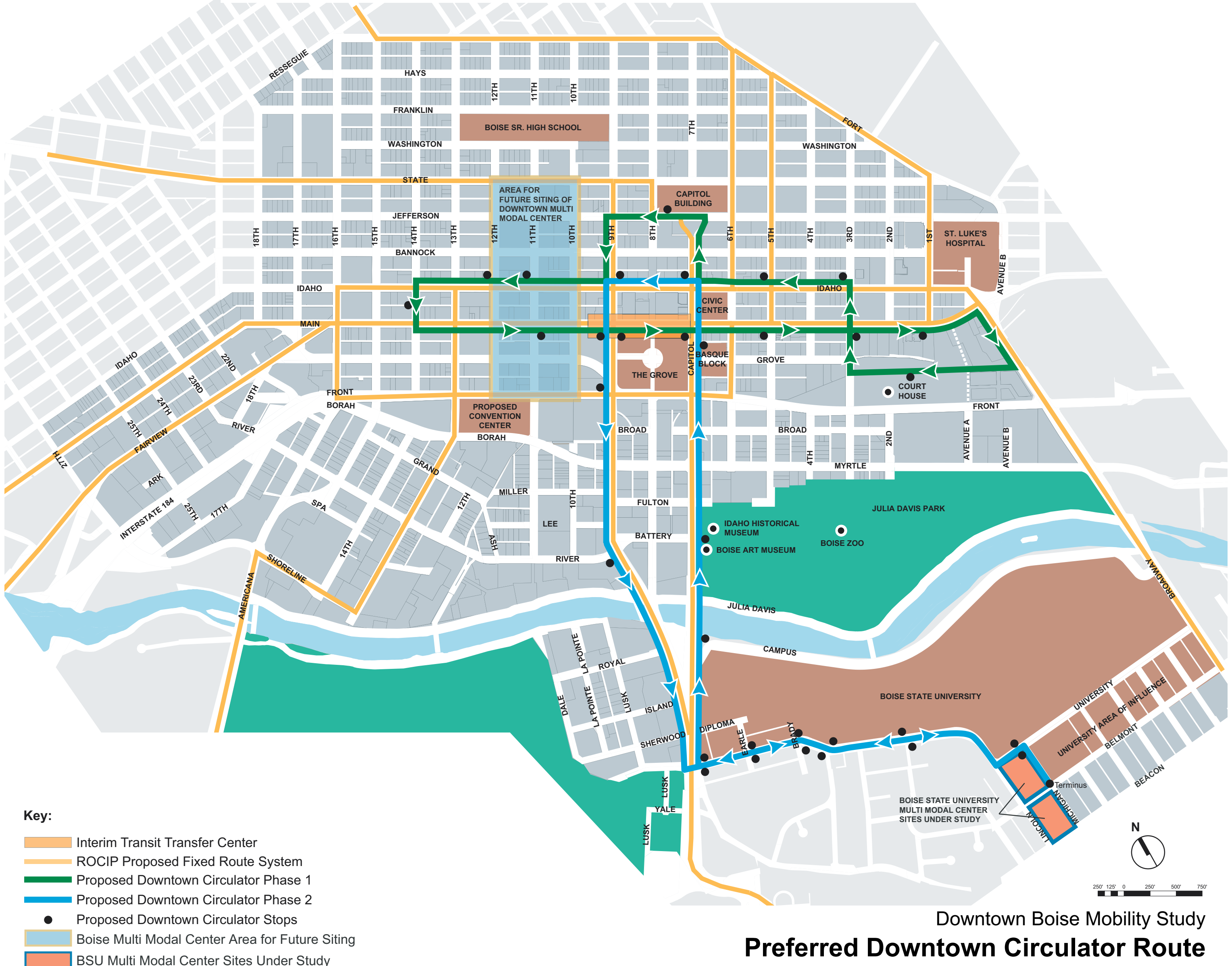
DOWNTOWN CIRCULATION

There is a need to serve downtown circulation needs throughout the day. If a commuter, shopper or student, comes downtown - even if by car - the walk times and distances are such that a vehicle based circulation system is needed to serve longer distance trips in the downtown area. For example, getting from St. Luke's Medical Center to downtown for a meeting or for lunch can be easily served by a shuttle or streetcar. A circulation system will allow people to park their car and leave them for the day or to choose to ride public transit downtown and then use a circulation service for other daytime trips.

A variety of transportation options were explored for the downtown circulation strategy from walking to shuttles, streetcars, and light rail. A downtown circulation strategy oriented toward two preferred routes was developed. Interest was expressed in both a shuttle circulator and in a future rail or streetcar system. The DBMS recommends a phased approach to downtown circulation services. For

Photo 1.20 Portland Streetcar stop in Portland, OR

Photo 1.21 Portland Streetcar information system



Downtown Boise Mobility Study

Preferred Downtown Circulator Route

Figure ES.3

the first phase, a high-frequency shuttle service along each route with a brand-distinguished service is recommended. This will develop the market for a downtown circulator and provide a mobility service throughout the day for those choosing to ride transit downtown. As the shuttle program begins, a feasibility study of a downtown circulator should be conducted - looking at the circulator as a two phased process. Phase I would serve east / west demand and Phase II would serve north / south demand. The circulator can become a central part of the regional transit system. (A feasibility study is required if Boise City plans on using Federal New Starts funding to build the rail system.) If the study reveals that a streetcar system is a logical next step in system development, a second-phase implementation of a streetcar or rail-based circulation service would begin starting with Phase 1 and leading to Phase 2 as shown in Figure ES.3.

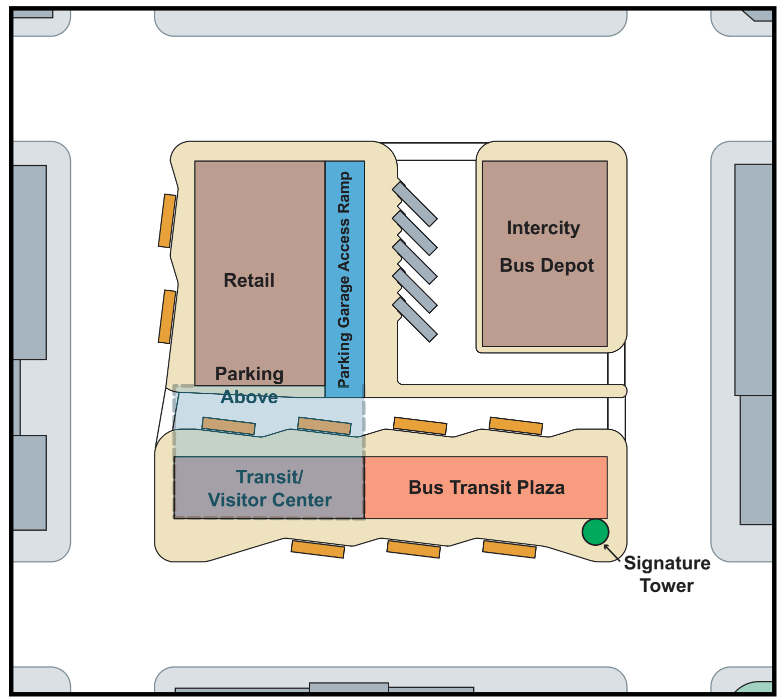
Photo 1.22 Tour D'Art Shuttle in Long Beach, CA

Photo 1.23 Downtown Circulation Working Group

Photo 1.24 Multimodal Center in Eugene, OR

DEVELOPMENT OF MULTIMODAL CENTERS

There has long been interest in a multimodal center that would be a consolidated stop for regional bus service and parking within downtown, with a shuttle to connect people from the multimodal center to their final destination. Boise State University is also exploring the development of a multimodal center to serve the campus and downtown community. The program for the downtown multimodal center is shown in Figure ES.4 and an artist's rendering of the center is shown in Figure ES.5. These centers will be important regional transportation assets.



Downtown Boise Mobility Study
Proposed Downtown Multimodal Center Configuration
Figure ES.4

Components of the Multimodal Center

- Nine bus bays
- Indoor and outdoor passenger waiting area
- 1000 parking spaces
- Bicycle parking
- Combined transit/visitor information center
- Signature tower
- Water features and other amenities
- Inter city bus depot
- High-quality design
- Public restroom
- Street-oriented retail opportunities

Downtown Boise Mobility Study

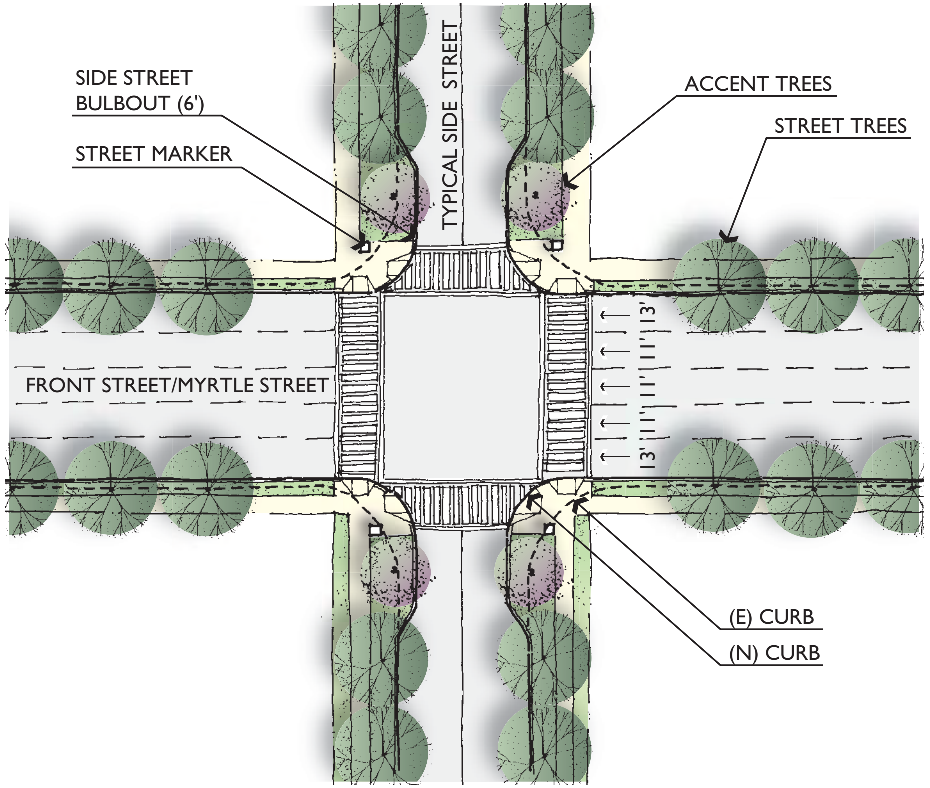
Artist's Rendering of Future Multimodal Center
Figure ES.5

FRONT AND MYRTLE COUPLET

The Front and Myrtle couplet presents a unique challenge because it serves three very important functions:

1) These two five-lane streets have the highest capacity of any downtown roads and provide important access to and from downtown;
2) The couplet provides the main corridor for through travel beyond downtown; and
3) It must also accommodate pedestrian travel from the downtown core, Westside and Old Boise-Eastside to the cultural district, the Greenbelt, the park system, and Boise State University. Currently, it does not provide a suitable environment for pedestrians and bicyclists. This is a difficult corridor to use for those not in automobiles.

To overcome the “barrier” created by these roads, enhancements can be added to increase the comfort of walkers and cyclists. Gateway enhancements can be added to create a stronger sense of arrival for those coming by foot or by bicycle. Figure ES.6 shows that landscaping and treatments at intersections along the side streets can increase the degree of comfort for walkers and reduce crossing distance at key locations. Still other enhancements can be achieved with minimal impact to auto capacity. Some are near term and easy to implement. ITD recently restriped Front and Myrtle with narrower lanes, new crosswalks, and some pedestrian countdown signals. These measures will be evaluated for application throughout the study area. Please see the Implementation Program for a discussion of improvements and potential impacts to roadway capacity, which will require further analysis by the Idaho Transportation Department.



Downtown Boise Mobility Study
Possible Enhancement to Front and Myrtle Streets
Figure ES.6

Photo 1.25 Front Street looking east

"BUFFERED" TREATMENT

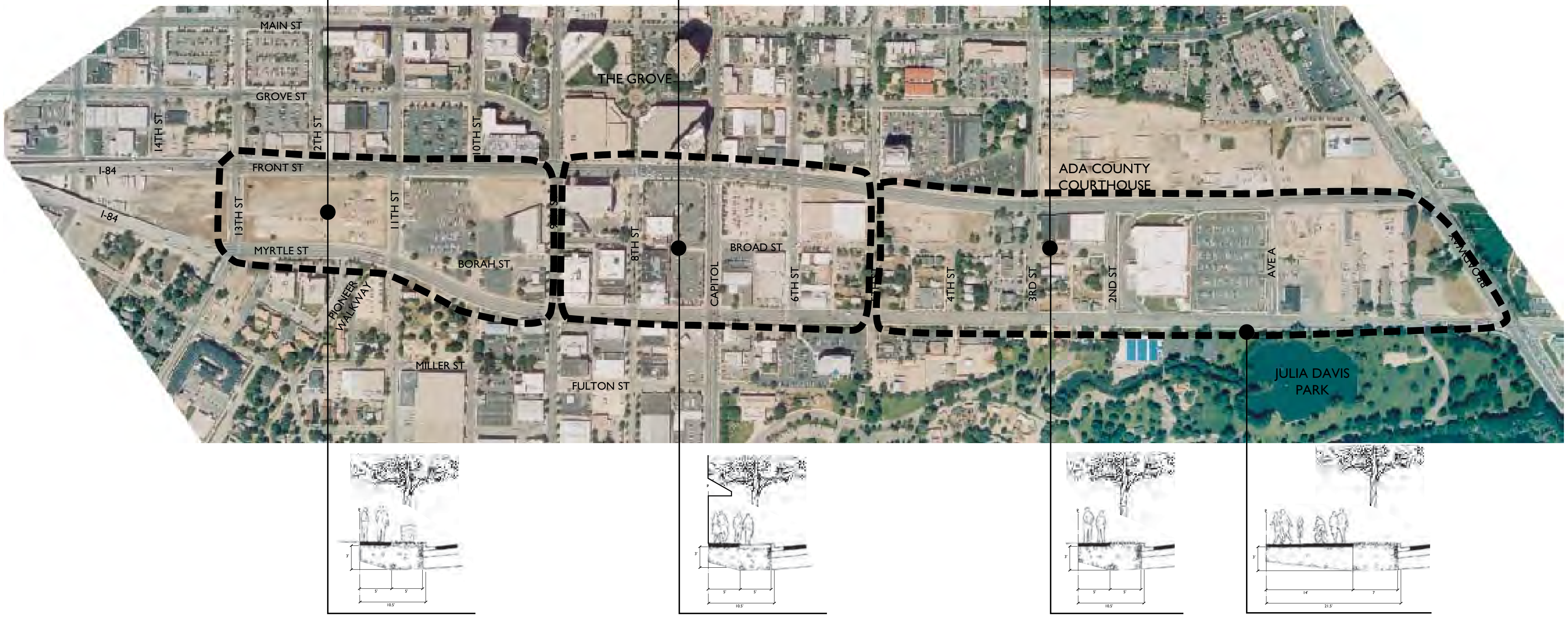
- Focus on 11th Street Crossing Improvements
- Bike/Ped Connectivity Improvements
- "Gateway" Feature at 13th/Myrtle
- Bike/Ped "Gateway" Feature at 11th/Myrtle

"URBAN" TREATMENT

- Bulbouts on Side Streets
- Emphasis on 8th Street Intersections
- Potential New Open Space on Front Between 5th and 6th

"STANDARD" TREATMENT

- Potential Lane Reduction w/Multi-Use Path
- Emphasis on North-South Connections
- Emphasis on 3rd Street and Avenue A as Pedestrian Corridors
- North-South Pedestrian Access
- "Gateway" Feature at Front/Broadway

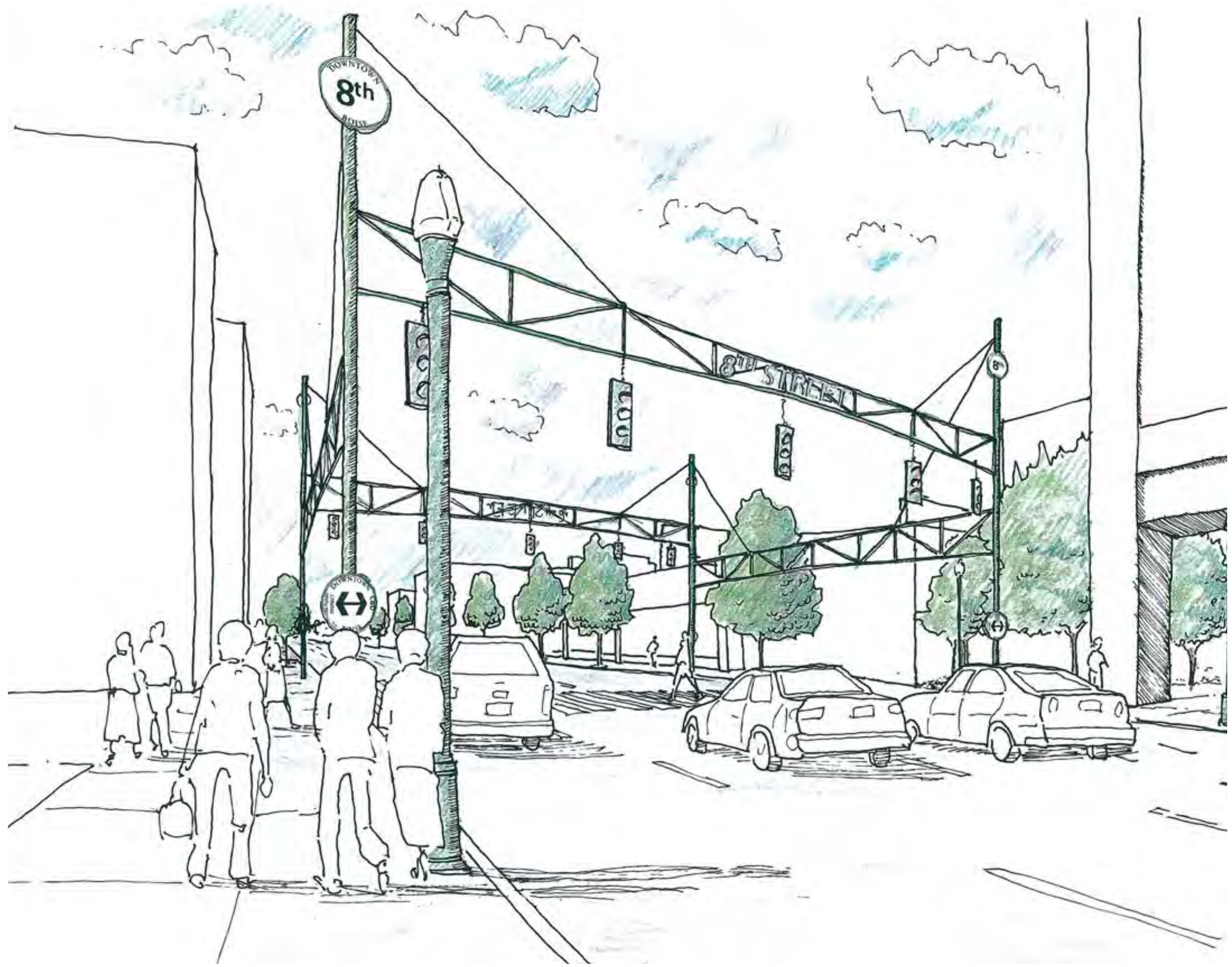


Downtown Boise Mobility Study

Urban Design Themes Along Front and Myrtle Streets
Figure ES.7

An urban design theme was developed for the corridor. It was developed with the idea of preserving as much auto capacity while adding landscaping and other urban design elements to increase the comfort of walkers and cyclists in the corridor and to indicate to walkers, bikers and drivers alike that different system users are present along the couplet. Landscaping and crossing enhancements as shown in Figure ES.7 are recommended throughout the Front and Myrtle corridor. There are three main segments to the corridor. The diagrams at the bottom of Figure ES.7 show the urban design possibilities along the corridor for each of the segments. Treatments will vary based on available space for landscaping and urban design elements. The diagrams in Figure ES.7 showing these treatments have been enlarged in the Implementation Program (see page 46 of the Program).

Other measures, such as reducing the road by a lane to add more sidewalk space were considered. Validation of this concept is desired through the Communities in Motion Long-Range Transportation Planning process. Throughout the corridor, gateway enhancements, such as the one illustrated in Figure ES.8, are recommended to announce to visitors they are arriving in downtown.



Downtown Boise Mobility Study
New Design Element at 8th Street Crossing Front Street
Figure ES.8

Costs

The total cost associated with land use and transportation measures identified in the DBMS is about $7.5 million over the next 20 years, not including funding for the major transportation projects. For a small amount of investment, new bicycle and pedestrian networks could be created, measures to encourage the use of alternative modes developed, and new design guidelines created, along with other measures to impact the vitality and livability of the downtown area. Thus, with planning and capital investment, downtown Boise will realize significant gain in the mobility and livability in the downtown area.

When the downtown circulator is implemented as a shuttle program, the budget grows by approximately $2 million and will further increase with the development of the multimodal centers ($11.25 million each) and a rail-based streetcar system (possibly $36 million for Phase I and $38 million for Phase II). The circulator and the multimodal centers will represent a significant investment of transportation resources in downtown Boise and should function as centerpieces to the regional transportation system while at the same time serving as a catalyst for private investments in real estate development and redevelopment in the downtown area.

The Implementation Program contains recommendations for programs such as funding a Transportation Demand Management Trip Reduction Coordinator, as well as projects across the downtown study area, including crosswalk and bike route improvements. Planning-level cost estimates have been developed for the following:

- Area-wide Measures: projects that are recommended throughout the study area such as optimizing signal timing plans or painting high visibility crosswalks.
- Location-specific Measures: projects specific to a place such as an intersection, a path, or a bridge.
- Downtown Circulator: Phase I is for a shuttle program (shuttles and stops). Upon completion of a study of alternatives, Phase II is for two circulator routes likely to be a streetcar system modeled after Portland, OR.
- Multimodal Center: assumes an estimate for providing a multimodal center in the downtown. The Boise State University multimodal center is currently undergoing the next phase of analysis known as an Environmental Assessment.
- Front and Myrtle Improvement Program: specific roadway, crossing, and gateway enhancements to the Front and Myrtle corridor.

Table ES.1 summarizes the total estimated cost for implementing all of the recommendations in the DBMS between now and 2025.

Table ES.1 Estimated Project Funding Needs

Project Type	Total Estimate ($2004)
Area-wide Measures	$1,000,000
Location-Specific Measures (not including Downtown Circulator shuttles, stops, and transit information system)	$4,200,000
Front and Myrtle Improvement Program (Approved elements only)	$2,300,000
Subtotal	**$7,400,000**
Downtown Circulator	
• Shuttles, stops, and information system	*$2,200,000*
• Streetcar Phase I	*$36,300,000*
• Streetcar Phase II	*$38,600,000*
Total for Downtown Circulator:	$77,100,000
Downtown Multimodal Center	$11,245,000
BSU Multimodal Center	$11,245,000
Total Investment Package	**$107,090,000**

Finding Additional Resources

Creating a transportation network takes considerable funding – often in the multi-million dollar range. The project list for the DBMS will draw upon the limited resources currently available in the Treasure Valley for a whole range of items. Many of the items can be layered into the ongoing operations of various implementation agencies, provided those agencies are aware of the measures recommended and are able to build these into their work programs. Some projects will require additional resources such as new traffic signals, sidewalk extensions, the multimodal center, or the downtown circulator. A key challenge of plan implementation is establishing an ongoing source of funding for the range of projects contained in the plan. It is unlikely that many of the projects will be implemented without a greater pool of resources. Many regions and cities faced with similar circumstances are now exploring local strategies to increase the funding pool. Boise City must embark in a direction that is most appropriate given the local need and the local political framework. Potential funding options include:

- Local option authority
- Tax Increment Financing (TIF)
- Additional vehicle registration fees
- Flexible use of federal highway funding
- Federal Transit Act 5307 and 5309 Formula Funds
- Federal Transit Act Section 5309 - New Rail Starts Discretionary

Photo 1.26: Bicycle and Pedestrian path along Boise Greenbelt

Photo 1.27: Intermodal center, Eugene, OR

Phasing

The DBMS is very broad in scope. Thus, not everything can be explored in depth. Some of the plan recommendations require further study. The Transportation System Plan is developed in phases to allow for a sequential implementation of projects and programs. Further, by phasing projects, the implementing agencies will have opportunities to establish trust with the public and each other before moving to larger-scale projects. Early stage projects and programs are simpler and more straightforward than the complicated, capital-intensive programs in future years.

Project phasing will also require careful balancing and coordination between transportation and land use programs. Many of the measures recommended in this plan anticipate future development and are intended for phasing with future development.

Phasing follows the following timeline:

- Immediate action items (1 to 3 years)
- Short-term items (3 to 5 years)
- Mid-term items (5 to 10 years)
- Long-term items (10 to 20 years)

Agency Roles

The various agencies assembled to oversee this study have different areas of responsibility relative to policies, guidelines and project implementation. While agency collaboration and participation are crucial to ensure buy-in, the plan lacks a clear voice for implementation. As the plan process draws to a close, an agency or organization must take the lead in coordination and implementation. Boise City has no jurisdiction over its local streets and roads system: therefore, strong collaboration between ACHD and Boise City is necessary. Boise City can set land use policies and urban design guidelines, but ACHD has final say over how the local road system is designed, managed and maintained.

It is recommended that either Boise City or the Capital City Development Corporation be the implementing body for the DBMS. These two agencies are most closely associated with the area and understand the local environment. Whichever agency takes the lead, there will be a need to coordinate plan implementation with Valley Regional Transit, Boise City departments, ACHD, ITD, Boise State University and COMPASS. Should Boise City decide to pursue federal funding opportunities for either the multimodal centers or the downtown circulator, a strong lead agency role will take on even greater importance.

Moving Forward

In the years ahead, Boise City must work strategically with regional and state transportation agencies to ensure the transportation system is able to meet the increasing demands placed upon it across modal categories. The study data suggest the system, as it is currently designed, is reaching its limits in some corridors, and more must be done to expand transportation choice downtown and throughout the Treasure Valley region as a whole.

Some key elements remain – a lead agency must be identified, and changes to local zoning codes and planning documents must be approved. These steps and many others will determine the ultimate success of the DBMS.

Many of the projects identified in this plan will require increased funding for transportation projects. More local resources are needed to implement projects downtown and regionally, whether expanding local bus service, providing new crosswalks and signals, or studying the feasibility of a downtown circulator. Boise City has grown to the point where new approaches to transportation project development are needed. Working in partnership with community leaders, citizens, Valley Regional Transit, ACHD, CCDC, Boise State University, COMPASS, and ITD, Boise City can find regional solutions that offer benefit to the city and the Treasure Valley as a whole.

This plan, rather than being an ending, is the beginning of the effort to better integrate transportation and land use in downtown Boise. This path ensures that downtown Boise is a vibrant, interconnected urban center with a multimodal transportation system to sustain the downtown community and the region now and in the future.

Photo 1.28: Wayfinding map in Westwood Village, CA.

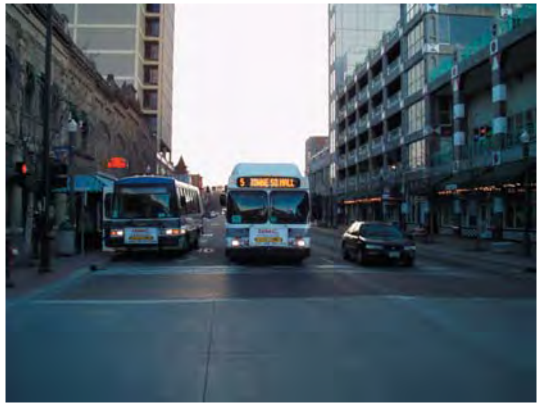


Photo 1.29: Transit providers in downtown Boise

Appendix A. Study Goals and Objectives

Appendix

The following goals and objectives were established for the study:

Goal 1:

Create a long-term, 30-year land use vision and mobility plan so that downtown Boise develops to be the foremost urban center for business, government, culture, education and urban living in the region.

OBJECTIVES:

1.1 Assess long-term growth trends and socio-economic data for the Treasure Valley and create a 2030 growth scenario for downtown Boise for use in developing the 30-year mobility plan.

1.2 Create a traffic model capable of simulating current vehicular and pedestrian traffic on downtown streets and evaluating future growth scenarios.

1.3 Develop a transportation system for downtown Boise that supports a robust economy, a lively mix of land uses at urban intensities and 24-hour activity.

1.4 Assure that the proposed downtown transportation system supports the 2030 growth scenario and the use of alternative modes.

1.5 Design a downtown transportation system that is expandable and capable of handling intensification of land uses and addition of new activity centers.

1.6 Identify transportation and parking improvements needed to make downtown Boise an exceptionally livable and functional place.

1.7 Expand the transportation system to better integrate Boise State University and cultural institutions across the Boise River with the downtown business district.

Goal 2:

Maximize transportation system efficiency and develop a downtown transportation system that includes and integrates a variety of travel modes and promotes the use of alternatives to the automobile.

OBJECTIVES:

2.1 Encourage the use of transportation alternatives through an aggressive downtown transportation demand management program.

2.2 Identify actions that employers, activity centers, public agencies and others can take to reduce auto usage by employees, customers, residents and visitors in downtown Boise.

2.3 Assess the current type and level of transit service available in downtown Boise and identify needed improvements.

2.4 Create a continuous and well-identified network of pedestrian and bicycle routes within and through downtown Boise.

2.5 Make better use of the parking supply so as to minimize the amount of land and resources needed to supply parking, and reduce the need to add parking as uses intensify in downtown Boise.

2.6 Extend travel choices for all community members, especially those who do not have the option of using automobiles for transportation.

Goal 3:

Link sub-districts, activity centers and the parking supply in downtown Boise through a well-designed, functional transportation system.

OBJECTIVES:

3.1 Give particular attention to creating links to and between the central business district, major downtown employers, State Capitol Mall, Boise State University, Ada County Courthouse, Boise City Hall and Library, St. Luke's Regional Medical Center, Julia Davis and Ann Morrison parks, Cultural District, and in-town neighborhoods.

3.2 Provide links from downtown Boise to adjacent activity centers such as Elks Rehabilitation Center, Veterans Hospital, MK Plaza, ParkCenter and Hyde Park, as well as close-in neighborhoods.

3.3 Diagram the current supply of parking in downtown Boise, and identify ways to balance the supply and demand for parking in downtown Boise through better transportation linkages between parking locations.

3.4 Create safe routes to schools, parks, and recreation centers to ensure children can travel throughout their neighborhoods.

Goal 4:

Identify how to enhance the performance of the downtown street system and improve mobility while at the same time making the system compatible with a people-oriented, urban-intensity downtown.

OBJECTIVES:

4.1 Establish a level of service standard appropriate for the downtown street system and evaluate the current level of mobility.

4.2 Identify changes to the street system and street design that would create a more comfortable, pedestrian-oriented atmosphere on downtown streets, with particular attention to the Front and Myrtle couplet.

4.3 Improve the level of north-south connectivity in downtown Boise especially from the central business district, St. Luke's Regional Medical Center, and the courthouse corridor to the Boise Greenbelt, Boise State University, and Julia Davis and Ann Morrison parks.

Goal 5:

Design the downtown transportation system so it effectively connects to the current and future regional transportation network.

OBJECTIVES:

5.1 Locate sites for multi-modal transfer stations in downtown that serve both downtown and the regional transportation system.

5.2 Include "plug-in" points for future regional transit in the design of routes for a downtown circulator system.

5.3 Identify facilities needed to make intermodal transportation systems practical for commuters.

Goal 6:

Develop a practical strategy for implementing the downtown mobility plan, which includes specific action steps, responsible parties, a timetable for accomplishment, and sources of funding.

OBJECTIVES:

6.1 Recommend improvements to the transportation system that are feasible within the policy, legal and funding frameworks of Boise City, Ada County, the State of Idaho, and Federal sources.

6.2 Examine opportunities beyond current funding frameworks to develop new revenue streams to support needed transportation investments.

6.3 Identify needed capital investments and operational funds to support the transportation system.

Table of Contents

Executive Summary v

1. Automobiles 1

1.1 Key Findings 2

1.2 General Description 4
Functional Classification

1.3 Major Roadways in Downtown 7
Downtown Couplets
Other Major Roadways

1.4 Traffic Demand 9
Downtown Traffic Calming

1.5 Network Performance and Level of Service (LOS) 10
Background
Analysis Results

1.6 Key Findings and Moving Forward 13
Preserving Access
Roadway Capacity
Key Facilities
Potential Future Pedestrian Corridors and Boulevards
Potential Future Bicycle Boulevards
Downtown Gateways
Re-evaluate Level of Service Policies

2. Transit 19

2.1 Existing Conditions 19

2.2 Downtown System Overview 21
Transit Gateways to Downtown
Downtown Transit Travel Times
Flag Stop System
Timed Transfers and Downtown
Existing Transfer Center
Bicycles and Transit

2.3 Regional Transit Connections 24
Treasure Valley Metro (TVM)
Greyhound
Commuters Bus
Valleyride Line by Line Overview

2.4 Bus Stop Boarding Activity 27

2.5 Passenger Facilities 29

2.6 Key Findings and Moving Forward 29
The Future of Transit in Downtown Boise

3. Bicycles 33

3.1 Key Findings 34

3.2 Downtown Bicycling Conditions 34
Bicycle Travel and Commuting
Bicycling Challenges in Downtown
Recreational Cycling

3.3 **Existing Bicycling Facilities** 36
Ridge to Rivers Trail System
Boise River Greenbelt
Pioneer Walkway
15th/16th Corridor
10th Street
Bannock Street
8th street
4th/5th Bike Route
Valleyride
Bicycle Parking
Bicycle Signage
Bicycle Shops

3.4 **Deficiencies in the Existing Network** 39

3.5 **Addressing Deficiencies and Expanding the System** 40
Bicycle and Pedestrian Advisory Committee
Maintenance
Signage
Bike Parking Ordinance
New links in the existing system
Main/Idaho
11th street
Bike Boulevard System

3.6 **Conclusions and Moving Forward** 43

4. Pedestrian 45

4.1 **Key Findings** 47

4.2 **Downtown Walking Conditions** 48
Core Area
Periphery
The Fairview Strip
Core Area Pedestrian Characteristics
Periphery Pedestrian Characteristics
The Fairview Strip
Walking Travel Times in the Downtown

4.3 **Existing Pedestrian Facilities in the Core Area** 53
Eighth Street Pedestrian Promenade
Grove Plaza
Main/Idaho Streets
Grove Street

4.4 **Existing Pedestrian Facilities in the Periphery** 54
Greenbelt
Pioneer Walkway
Courthouse Corridor Pedestrian Promenade
Planned Enhancements to the Pedestrian Network
Core Area
Periphery

4.5 **Deficiencies in the Existing Pedestrian Network** 55
Core Area
Periphery
The Fairview Strip

4.6 **Addressing Deficiencies and Expanding the System** 57
Connectivity
Enhancements
Expanding the Pedestrian Network
North and South Pedestrian Corridors
North and South Boulevards
East and West Pedestrian Corridors
East and West Boulevards
Downtown Pedestrian District

4.7 **Conclusions and Moving Forward** 62

5. Transportation Demand Management 63

5.1 Background 63

5.2 Current Practice for Downtown Boise 65

5.3 Key FIndings and Moving Forward 66
Ensure Viable Alternatives Are Available
Safe Routes to Schools
Student Transit Pass Program
BSU/Downtown Business Association Shared Bike Program
Increase Existing "Parking-Cheks" for 2+ Vehicle Occupancy
Parking Cash Out
Dynamic Parking Pricing
Parking Management
Increase TDM Marketing Efforts
Employer-Provided Fleet Vehicles
TDM Ordinance
Residential Parking Permit Districts
No Minimum Parking Requirement
Unbundled Parking Costs
Impact Fees
Creation of a Traffic Management Association

6. Intelligent Transportation Systems 73

6.1 Key Findings 73

6.2 Current Conditions and Infrastructure 74
Surveillance Cameras
Incident Management
Advanced Signal Control
Traffic Management Center
Communications Technology and Infrastructure
Traveler Information and Parking Guidance

6.3 Conclusions and Moving Forward 80

7. Freight 83

7.1 Key Findings 84

7.2 Analysis of Current Conditions 85

7.3 Current Conditions of Truck-Related Infrastructure 86
Loading Docks
Delivery Lanes & Pullouts
8th Street Delivery Zone
Alleyways
Pavement Condition
Wear And Tear On Streetscape

7.4 Routes 90

7.5 Conclusions and Moving Forward 92
Recommendations

7.6 Case Studies 93
Meadow Gold Dairy
Boise State University
Entertainment Venues

Appendix

Appendix A. Automobiles: Existing Lane Configuration

Appendix B. Automobiles: Existing PM Peak Hour Intersection Turning Movement Counts

Appendix C. Automobiles: Capacity Analysis Output Reports

Appendix D. Intelligent Transportation Systems: Data Collection Notes

Appendix E. Freight: Data Collection Notes

Appendix F. Freight: Photos of Interest

1. Automobiles

The Boise Downtown Mobility Study includes an assessment of the roadways in the downtown study area. The roadway assessment focuses on the performance of street network. While automobile circulation to and within the downtown is a principal concern, it is recognized that the streets also serve other modes including pedestrians, bicycles and public transit.

Downtown Boise is situated between the Boise River and the Boise foothills. Several geographic features, including the Boise River, the Bench, and the foothills, influence access into downtown by limiting the number of connections to the downtown grid. The street network in the downtown core is based on a historic grid pattern with short blocks, wide sidewalks, and narrow road rights-of-way. The grid was established to facilitate pedestrian circulation and maximize access to adjacent properties. On the periphery of downtown, there is a greater auto orientation with longer blocks, wider roadways, and fewer crossing points. These streets are designed primary to serve large traffic volumes entering and leaving downtown. Generally, the roadway network is designed and operated to maximize the efficiency of travel by car. Exceptions include Main, Idaho, and Eighth Streets which are focused heavily on pedestrian access and mobility.

The roadway assessment relates to the following DBMS goals:

Goal 3: Link sub-districts, activity centers and the parking supply in downtown Boise through a well-designed, functional transportation system.

Goal 4: Identify how to enhance the performance of the downtown street system and improve mobility while at the same time make the system compatible with a people-oriented, urban-intensity downtown.

Goal 5: Design the downtown transportation system so it effectively connects to the current and future regional transportation network.

Roadway performance and automobile access are critical to the health and vitality of downtown. While there is growing interest in supporting alternative modes and different uses of roadway space, automobiles will continue to function as the primary form of transportation for most people who visit or live downtown. Only 2.8% of Ada County households are currently living without a car, while 22% of Ada County households have three or more vehicles. For commute trips to work, 78.6% of all Ada County residents chose to drive alone while 7.7% participated in a carpool. Carpooling represents the most widely used form of alternative transportation in the region, underscoring the importance of the private car.

Despite the dominance of auto use it is necessary to strike a balance between drivers and other roadway users as downtown moves toward a vision for mixed use, transit oriented development and pedestrian-oriented streets. Only through a balanced approach will the downtown be able to support the wider development and growth objectives of the downtown community.

This chapter is organized into the following sections:

1.1 Key Findings

1.2 General Description

1.3 Major Roadways in Downtown

1.4 Traffic Demand

1.5 Network Performance and Level of Service (LOS)

1.6 Key Findings and Moving Forward

Please see also the following appendices:

Appendix A. Existing Lane Configuration

Appendix B. Existing PM Peak Hour Intersection Turning Movement Counts

Appendix C. Capacity Analysis Output Reports

NOTES:
Parking is not addressed in the DBMS as the Capital City Development Corporation is currently leading a parallel study effort to evaluate parking needs for downtown.

Photo 1.1 Capitol and Main

Photo 1.2 Myrtle at rush hour

Photo 1.3 Eighth Street in cultural district


Photo 1.4 Capitol and Idaho

Existing conditions data and operational analysis was provided by the Ada County Highway District (ACHD) and the Idaho Transportation Department (ITD). This information includes traffic volumes, intersection control, lane configuration and intersection capacity analysis. It should be noted that the information provided covers a large portion of the study area, complete coverage was not available. Data and results presented in this document reflect the information available.

1.1 Key Findings

Generally the roadway system performs well for automobile access and mobility, with some isolated problem areas. Key findings from this report are:

- The private automobile will continue to be the most common mode of travel in the region and it is therefore critical that the major access routes into downtown continue to principally serve automobile traffic.
- There is adequate capacity on most downtown streets. The principal exception is the Front-Myrtle couplet, with associated spillback on 9th Street during peak periods. Intersections along Broadway north of the Boise River and a small number of additional isolated locations on the periphery of downtown are approaching capacity.
- Recognizing there is generally adequate roadway capacity, there are opportunities to reallocate some capacity or right-of-way width to serve other modes of transportation. This is particularly true for the downtown core where the use of alternative modes is most concentrated.
- The Front-Myrtle couplet plays a key role as a high capacity automobile route to and through Downtown, and relieves nearby streets of additional automobile traffic. Physical improvements are possible that would allow it to maintain its functionality while adding urban design elements and improving connectivity between areas north and south of the couplet.
- State Street and Capitol Boulevard provide important automobile links through Downtown, but also have the potential to offer enhanced transit service.
- Several key streets have been identified based on their importance as roadway links and their performance with respect to all road users. These streets include:
    - Front Street
    - Myrtle Street
    - Capitol Boulevard
    - 9th Street

Key:
One-Way Traffic Direction
Note: All other streets are two-way

Downtown Boise Mobility Study
Street Directions
Figure 1.1

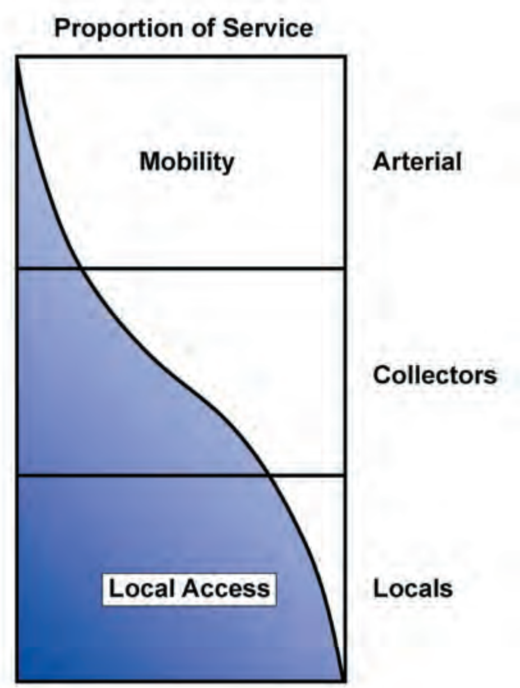


Figure 1.2

- 15th Street
- 16th Street
- Broadway Avenue
- Americana Boulevard
- State Street
- Fairview Avenue
- Main Street
- Idaho Street

- Of these streets, State, Capitol, Front, and Myrtle should provide for Boulevard features (discussed in the Pedestrian element) to balance different needs and provide for graceful gateways to downtown Boise.
- Key gateways to downtown should announce to the traveler arrival in downtown Boise through signage and urban design treatments.
- More flexible Level of Service policies should be implemented for the downtown area. LOS should be considered in context with other community benefits including a balanced transportation system, a thriving street environment and downtown development goals.

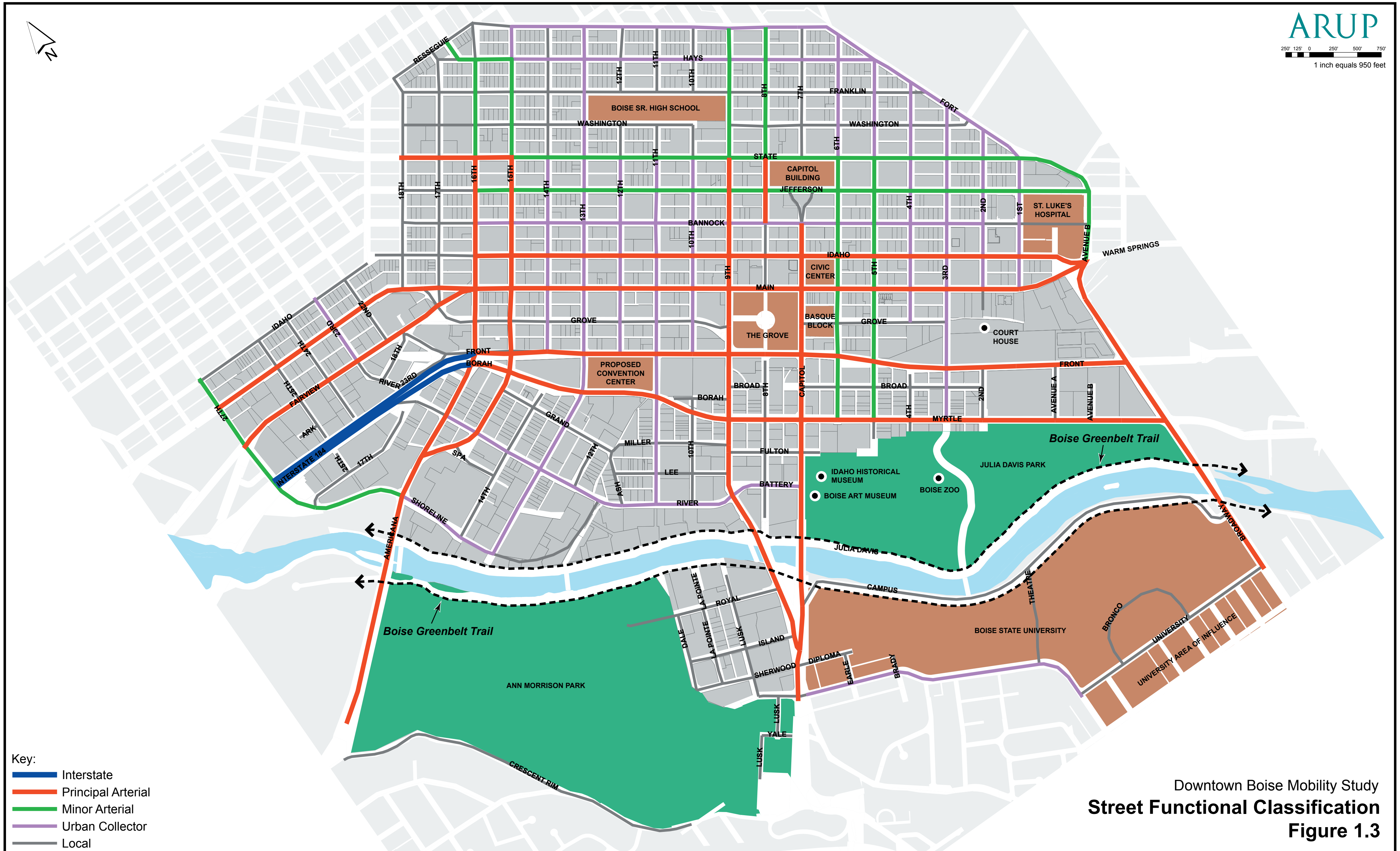
1.2 General Description

The street network in downtown Boise is distinguished by a rectilinear grid, with streets spaced 400 feet on center and generally aligned with the Boise River. Typical downtown streets are typically 60 feet wide and consist of two or three travel lanes with on-street parking on both sides. The majority of streets are one-way, although there are a limited number of two-way streets or segments. Most intersections within the downtown core are signalized. Street directions are indicated in Figure 1.
Within Downtown, there are numerous activity centers, which generate traffic and sustain the economy of the downtown area. Major activity centers include:

- The Idaho State Capitol and Mall Complex
- Central Business District
- The Grove Plaza
- Ada County Courthouse
- St. Luke's Regional Medical Center
- Julia Davis Park
- Idaho Historical Museum
- Boise Art Museum
- Boise Zoo
- Boise Public Library
- Boise State University
- Winco Foods
- Albertsons

Principal access routes into Downtown Boise include:

- Interstate 184
- Main Street/Fairview Avenue Couplet
- 15th Street/16th Street Couplet



Downtown Boise Mobility Study
Street Functional Classification
Figure 1.3

Photo 1.5 Local street on Eastside

Photo 1.6 Basque Block

- State Street
- Warm Springs Avenue
- Broadway Avenue
- Capitol Boulevard
- Americana Boulevard

Lane configuration at intersections have been provided by ACHD and are illustrated in Appendix A.

FUNCTIONAL CLASSIFICATION

Transportation planners and traffic engineers typically classify streets according to functions. Functional classification is determined by the degree to which a street provides for the conflicting purposes of mobility and access. A Principal Arterial street emphasizes movement and typically have relatively wide cross sections, high travel speeds, heavy traffic volumes and limited access points. On the other end of the spectrum, the primary purpose of a Local Street is to provide access to adjacent parcels. These are typically small, low-volume streets with frequent intersections or driveways.

As access to property increases, mobility decreases as more vehicle movements (turn, park, merge) impede on the through movement of vehicles. Limited access allows for greater mobility with higher travel speeds and throughput of vehicles. Figure 2 demonstrates the relationship between mobility and access on the three major street types: arterial, collector and local streets.

The distinctions between streets with different functional classifications are often less apparent in a downtown environment than in a suburban environment. This is true for downtown Boise, where the historic grid structure has consistent block lengths and pavement widths.

The Ada County Highway District defines the existing functional classification for streets in the study area, which has been illustrated using different colors in Figure 3. Described below are each of the functional classifications for streets in downtown Boise and some example streets in the study area.

Principal Arterial

Principal Arterial roadways typically carry high traffic volumes through an area and may have limited or controlled access. These streets frequently have wide cross sections.   The major arterials in downtown Boise are Capitol, Front, Myrtle, 15th, 16th, Americana, Main, Idaho, and Broadway (US 20/26).

Minor Arterial

Also carry predominantly through traffic, but are smaller than Principal Arterials and have a greater degree of access. Examples of minor arterials in the downtown area are State, Jefferson, 5th, and 6th Street.

Urban Collector

Collectors carry trips between arterials and smaller streets and provide access to adjacent properties. Examples of collector roads in the downtown area include Bannock, Shoreline (south of Americana), 13th, and 10th.

Local Streets

Local streets serve local needs and access to properties, with relatively limited circulation opportunities. Examples of local roads in the downtown study area include 17th, Crescent, and Broad.

National Highway System Routes

The National Highway System (NHS) includes the Interstate Highway System as well as other roads important to the nation’s economy, defense, and mobility. The NHS was developed by the U.S. Department of Transportation in cooperation with the states, local officials, and metropolitan planning organizations. Within the Downtown Boise study area Front, Myrtle, and Broadway (US 20/26) are designated NHS routes in addition to Interstate 184. Changes to these roadways are subject to additional oversight by the Federal Highway Administration.

1.3 Major Roadways in Downtown

Given that the vast majority of people in Treasure Valley drive for their daily trip needs, automobiles play a critical role for downtown access and mobility. Automobile circulation in downtown is concentrated on several major corridors. In addition to accommodating vehicular circulation within the downtown core, these corridors represent the principal access routes into and out of downtown. Most of these corridors consist of two parallel streets operating as one-way couplets. The principal arterial corridors are described below.

DOWNTOWN COUPLETS

Front-Myrtle Couplet

Front Street and Myrtle Street together form the principal east-west route through downtown. These major one-way roadways are each five lanes wide and connect directly to Interstate 184 on the west side of downtown. The 1993 Downtown Plan identified the need for this cross-town connection to provide greater access to downtown from the regional highway network. The Front-Myrtle couplet was also designed to attract automobile traffic off of the Main-Idaho couplet to reduce through traffic and congestion in the downtown core and allow for the creation of a transit mall along those streets.

Main-Idaho Couplet

Main Street and Idaho Street together comprise another major east-west couplet. The Main-Idaho couplet passes through the downtown core and was the traditional cross-town route prior to the construction of the Front-Myrtle couplet improvements. They are also the location of the cruise with heavy traffic volumes on Friday and Saturday nights. This couplet is located immediately to the north of The Grove plaza and two blocks north of Front Street.

Idaho and Main Streets between Capitol and 10th function as the transit hub for the regional transit system operated by ValleyRide. The regional transit network converges in downtown. The streets are lined with passenger shelters, wider sidewalks, street trees, and other amenities creating a comfortable waiting environment. Parking is restricted on the right sides to create Bus Only lanes and allow for easier bus operation. As discussed in the transit chapter, these streets provide the hub for entire regional system and play an important role for providing connectivity between routes and access across the region.

Main-Fairview Couplet

Main Street and Fairview Avenue form the continuation of the Main-Idaho couplet to the west, crossing the Boise River and connecting to Chinden Boulevard (US 20/26). This arrangement necessitates that Main Street change from one-way westbound to one-way eastbound at 16th Street. As a result the intersection of Main Street and 16th Street has an awkward arrangement.

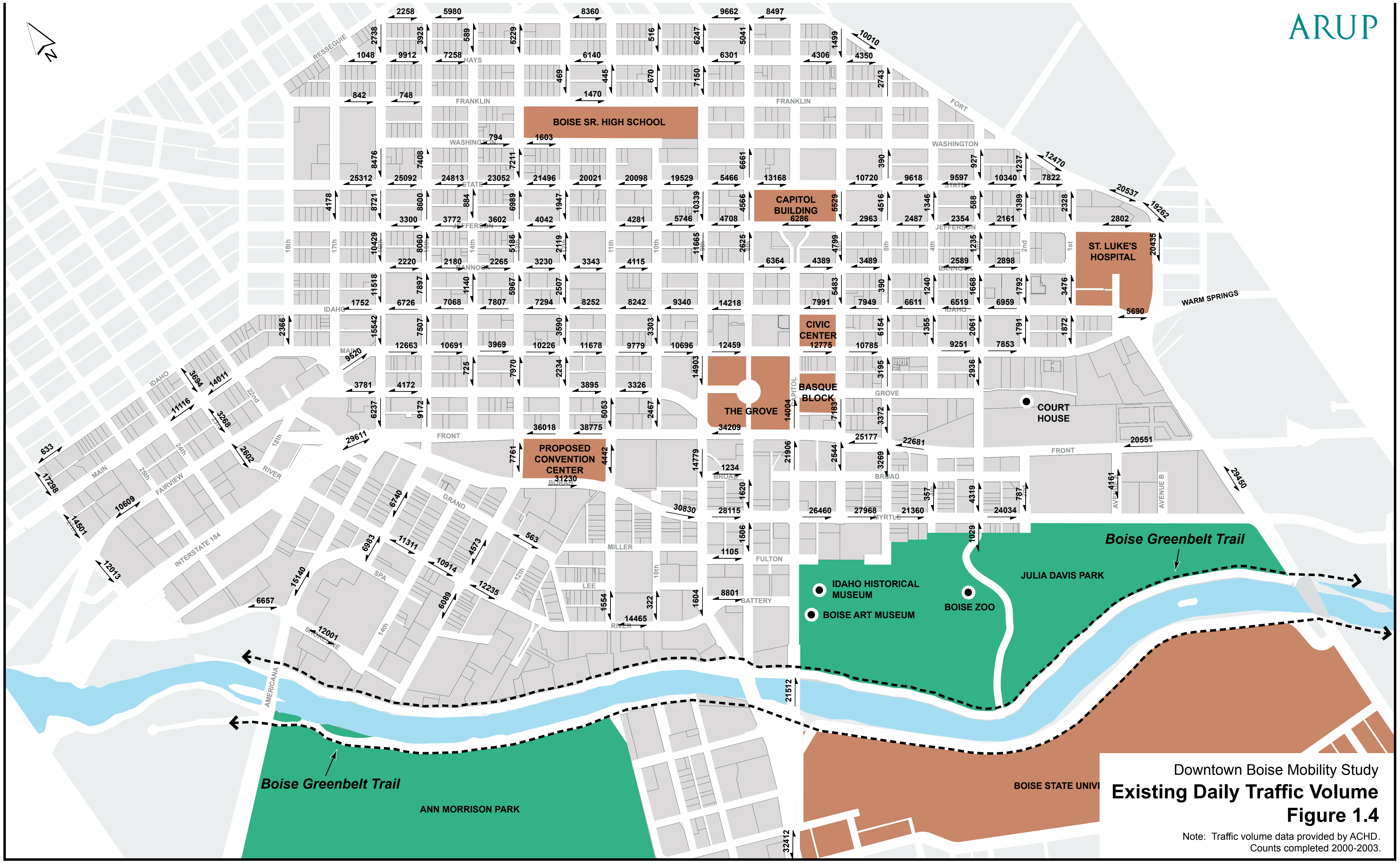
Capitol-9th Couplet

Capitol Boulevard runs north and 9th Street runs south in this important link to downtown from the south. These streets provide one of three crossings of the Boise River in downtown. After crossing the Boise River southbound, 9th Street rejoins Capitol Boulevard to create a two-way street. Capitol Boulevard northbound terminates at Jefferson Street in front of the State Capitol building.

15th-16th Couplet

15th Street and 16th Street form a north-south couplet on the west side of the study area. The two streets combine south of River Street and become Americana Boulevard.

One-way couplets, such as the corridors identified above, are designed to increase the capacity of the street system with multiple travel lanes heading in the same direction and simple two-phase signal operation. They are particularly effective when traffic signals are coordinated to optimize traffic flow, as is the case on the Front-Myrtle couplet. Designed and managed correctly, these streets help move traffic while at the same time accommodating walking, bicycling and transit. One-way streets can provide benefits to pedestrians by reducing the number of intersection turning movement and conflict points. Because couplets move traffic efficiently, street cross sections


ARUP
BOISE SR. HIGH SCHOOL
CAPITOL BUILDING
ST. LUKE'S HOSPITAL
CIVIC CENTER
BASQUE BLOCK
THE GROVE
COURT HOUSE
PROPOSED CONVENTION CENTER
IDAHO HISTORICAL MUSEUM
BOISE ART MUSEUM
BOISE ZOO
JULIA DAVIS PARK
Boise Greenbelt Trail
Boise Greenbelt Trail
ANN MORRISON PARK
BOISE STATE UNIV
FRANKLIN
WASHINGTON
STATE
JEFFERSON
BANNOCK
IDAHO
MAIN
GROVE
FRONT
BROAD
MYRTLE
FULTON
BATTERY
RIVER
MILLER
LEE
FORT
HAYS
RESSEGUIE
WARM SPRINGS
FAIRVIEW
GRAND
SPA
INTERSTATE 184
AMERICANA
SHORELINE
CAPITOL
AVENUE B
Downtown Boise Mobility Study
Existing Daily Traffic Volume
Figure 1.4
Note: Traffic volume data provided by ACHD.
Counts completed 2000-2003.

and pedestrian crossing distances can also be minimized. This is best demonstrated by the Main-Idaho couplet, which offers an inviting walking environment while accommodating significant traffic volume. Front-Myrtle, on the other hand, are uncomfortable environments for walking or cycling. These streets have significantly higher traffic volumes, additional traffic lanes and fewer crossing opportunities. There is also no transit presence on streets.

OTHER MAJOR ROADWAYS

Americana Boulevard

Americana Boulevard is a principal arterial on the western edge of Downtown and provides a connection across the Boise River. The street provides connections from western Boise to the River District and downtown.

Broadway Avenue

Broadway Avenue is a principal arterial on the eastern edge of downtown that crosses the Boise River and links Boise State University to the eastern end of the study area. It provides connections to both the Front-Myrtle couplet and the Main-Idaho couplet.

State Street

State Street is a major cross-town connection in the northern portion of the study area. It runs along the northern edge of the downtown core and is predominantly oriented toward automobile travel. It serves as a major gateway to downtown to and from the northwest.

1.4 Traffic Demand

The Idaho Transportation Department (ITD) and ACHD have provided traffic count data for this study. Figure 4 illustrates recent daily traffic volumes on roadway segments within the study area. Appendix B presents available existing conditions PM peak hour intersection turning movement counts.

The heaviest traffic volumes are experienced on the arterial streets that serve as major gateways to downtown. The table below identifies the ten streets that were observed to have the heaviest traffic volumes in the study area.

Street	Between	Count Date	24 Hour Traffic Volume	% in AM Peak Hour	% in PM Peak Hour
Front	9th / 10th	7/31/02	38,775	2.1	10.0
Capitol	Boise Ave./Federal Way	12/2/98	32,412	6.8	8.7
Myrtle	11th / 13th	3/19/03	31,230	10.7	6.7
Broadway	Front / Myrtle	11/5/02	29,450	5.5	7.7
State	16th / 17th	9/5/02	25,312	6.8	8.5
9th	River Bridge	3/02	22,201	Data Not Available	
Avenue B	Jefferson / Idaho	11/5/02	20,435	6.6	8.6
16th	Idaho / Main	3/5/03	15,542	6.4	9.8
River	10th / 11th	11/16/02	14,465	Data Not Available	
Idaho	8th / 9th	12/19/01	14,208	2.9	9.6

In general, traffic in downtown is more concentrated during the afternoon peak than in the morning peak. Exceptions include one-way streets that serve inbound traffic such as Myrtle Street.

With the exception of the arterial roadways, most downtown streets have low to moderate traffic volumes. For example 5th, 6th, Bannock, Grove, Jefferson, and 11th through 15th Streets only experience traffic volumes between approximately 2,000 and 5,000 cars per day.

The high volumes on arterial streets concentrate traffic in some specific areas in downtown. These areas include:

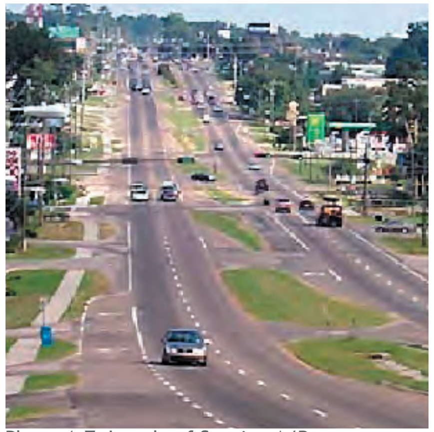


Photo 1.7 Levels of Service A/B


Photo 1.8 Level of Service C/D

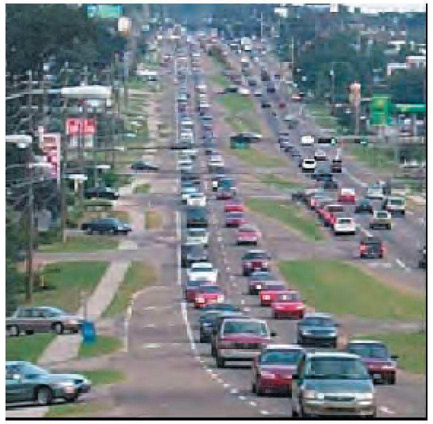


Photo 1.9 Level of Service E/F

- Central Business District. High traffic volumes on State, Idaho, Main, Front, 9th and Capitol.
- Front-Myrtle couplet area and the Courthouse Corridor. In addition to the heavy traffic on the Front-Myrtle couplet, high crossing volumes on 15th, 16th, 9th, Capitol and Broadway
- Main-Idaho corridor through Westside. High volumes on Main, Idaho, 15th and 16th.
- 15th-16th corridor through Westside. In addition to the heavy traffic on the 15th -16th couplet, high crossing volumes on State, Front, Idaho and Main
- Capitol Mall Corridor
- Area in the vicinity of St. Luke's Regional Medical Center. High volumes on Avenue B, Broadway, Fort, Idaho and Main.
- Boise State University. High volumes on Capitol and Broadway.

DOWNTOWN TRAFFIC CALMING

The City of Boise and ACHD have in recent years embarked on a series of traffic calming initiatives to create more livable streets in the downtown core. Streets have been vacated near Boise High School, allowing a plaza to be created between various school buildings. Eighth Street between Bannock and Main has been narrowed and sidewalks widened for the purpose of slowing traffic while also enriching the pedestrian environment including allowing for sidewalk cafes. Grove Street was redesigned to create the Basque Block between Sixth Street and Capitol Boulevard. Traffic has been restricted to one-way flow, curbs have been removed, and special paving installed to create a plaza effect. These traffic calming techniques serve dual purposes: they accommodate traffic, albeit at low speeds, create inviting walking and bicycling environments and enhance local businesses. These techniques offer great benefit for pedestrians, bicyclists, and adjacent land uses but they are only possible because ACHD has routed automobile traffic to other streets and roads.   These applications hold promise for other areas of downtown that will experience growth in coming years.

1.5 Network Performance and Level of Service (LOS)

BACKGROUND

Level of Service (LOS) is a concept used to describe traffic operating conditions. The term is defined in the 2000 Highway Capacity Manual (HCM) published by the Transportation Research Board. Intersection LOS is the most common measure of performance of the operation of urban streets and can be calculated for both signalized and unsignalized intersections. The LOS of an intersection is defined by the average time delay experienced by vehicles traveling through the intersection.

Similar to a report card, LOS varies from LOS "A" to "F" with "A" representing the best driving conditions and "F" the worst, and "E" generally representing the capacity threshold.   The LOS grades for roadway intersections are generally defined as follows for the drivers of vehicles:

- LOS A represents near free-flow travel with vehicles experiencing minimal or no delay. Most vehicles do not have to stop.
- LOS B has a slightly higher proportion of vehicles stopping than with LOS A. This causes a minor increase in average delay and reduction in comfort, convenience, and maneuvering freedom.
- LOS C has a significant number of vehicles stopping, although many vehicles may be able to pass through the intersection without stopping. Individual cycle failures may occasionally occur at signalized intersections, when a green signal phase does not serve all queued vehicles.
- LOS D has many vehicles stopping, with the influence of congestion becoming more noticeable. Individual cycle failures are noticeable.
- LOS E represents operating conditions at or near capacity. Vehicles experience relatively high delays. Minor disturbances in traffic flow can cause breakdown conditions.

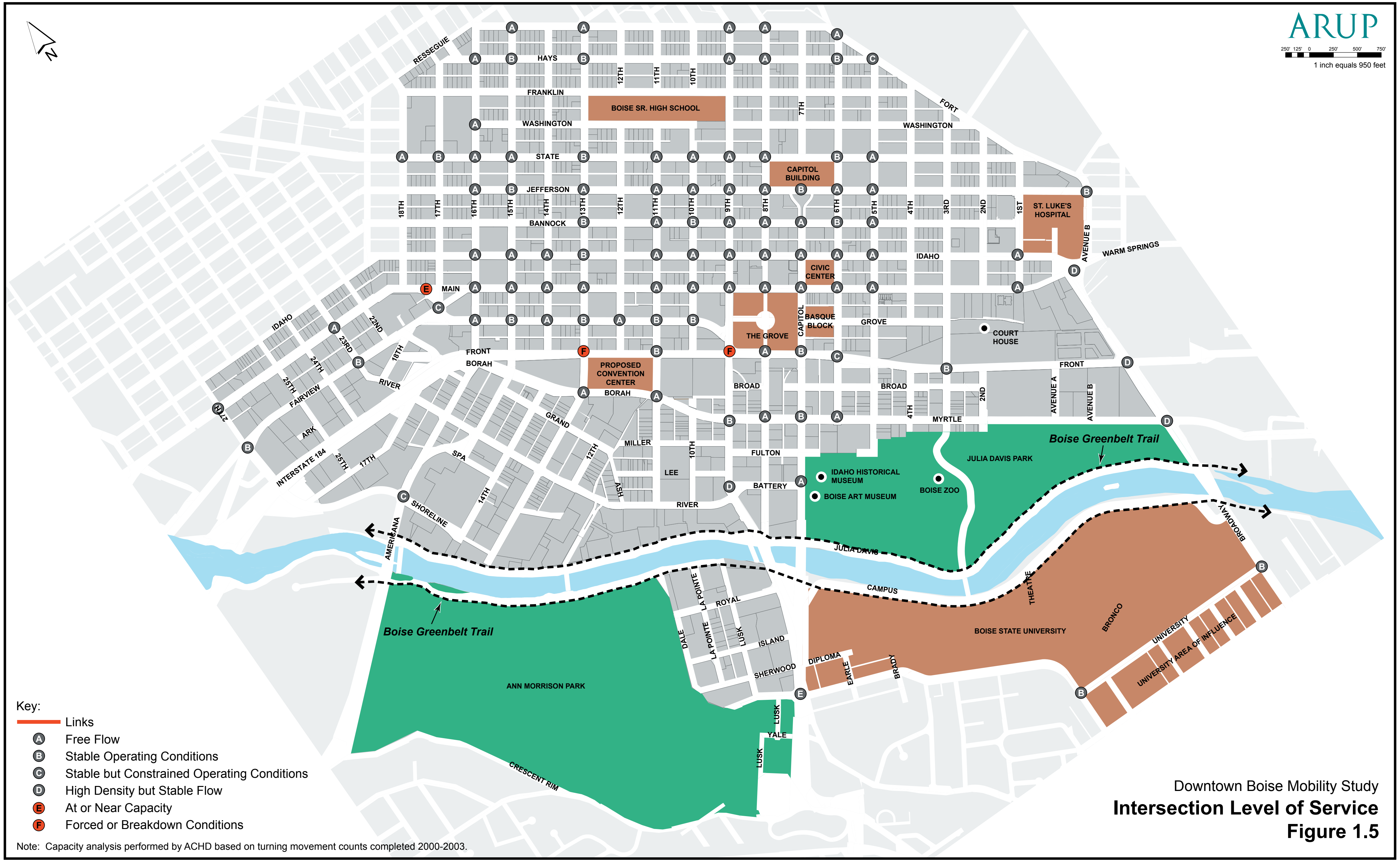

ARUP
1 inch equals 950 feet
BOISE SR. HIGH SCHOOL
CAPITOL BUILDING
ST. LUKE'S HOSPITAL
CIVIC CENTER
BASQUE BLOCK
THE GROVE
PROPOSED CONVENTION CENTER
COURT HOUSE
JULIA DAVIS PARK
IDAHO HISTORICAL MUSEUM
BOISE ART MUSEUM
BOISE ZOO
Boise Greenbelt Trail
ANN MORRISON PARK
BOISE STATE UNIVERSITY
UNIVERSITY AREA OF INFLUENCE
Key:
Links
Free Flow
Stable Operating Conditions
Stable but Constrained Operating Conditions
High Density but Stable Flow
At or Near Capacity
Forced or Breakdown Conditions
Note: Capacity analysis performed by ACHD based on turning movement counts completed 2000-2003.
Downtown Boise Mobility Study
Intersection Level of Service
Figure 1.5

Photo 1.10 Front Street along Courthouse corridor

- LOS F is used to define over-saturated conditions. This condition exists wherever the volume of traffic exceeds the capacity of the intersection. Delays are unacceptable to most drivers. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion.

ANALYSIS RESULTS

Capacity analysis has been completed by ACHD for a large number of intersections within the study area to determine afternoon peak hour LOS. These calculations were completed using Synchro traffic analysis software using recent turning movement counts. Figure 5 illustrates the resulting existing PM peak LOS at intersections within the study area. Synchro output reports are included in Appendix C to this report.

Level of Service D or better is generally considered to be acceptable. Generally, the LOS at intersections analyzed throughout the study area is good with most intersections performing at an LOS A or B. The table below presents results of the capacity analysis for intersections found to operate at LOS C or worse.

Intersection	Average Delay (sec/veh)	Level of Service
Shoreline and Americana	23	C
Hayes, 5th and Fort	32	C
Myrtle and Broadway	41	D
River and 9th	42	D
Main and 17th Street (Stop Controlled)	47	E
Main, Idaho, Avenue Bm Broadway and Warm Springs	48	D
Front and Broadway	55	D
Capitol, University and Boise	60	E
Front and 9th	113	F
Front and 13th	110	F

Four intersections were found to experience poor operation (LOS E or F). These intersections are described below.

- Front Street and 9th Street. This signalized intersection was determined to operate with LOS F in the PM peak hour. Average delay for drivers using this intersection was calculated to be 113 seconds, only slightly less than the 120 second cycle length.
- Front Street and 13th Street. This signalized intersection was determined to operate with LOS F in the PM peak hour. Average delay for drivers using this intersection was calculated to be 110 seconds.

As a result of the poor operation of these two intersections, significant traffic congestion is experienced in the area. Queuing from these intersections can extend back to adjacent intersections, negatively impacting operation which is not reflected in the results of the isolated intersection analysis presented in Figure 5. For example, congestion has been observed on 9th Street as a result of queues that extend back from the intersection with Front Street. Given that this corridor experiences poor operation under existing conditions, any future traffic growth would contribute to additional congestion unless mitigation measures are implemented.

- Main Street and 17th Street. This stop-controlled intersection was determined to operate with LOS E in the PM peak hour, with an overall average intersection delay of 47 seconds. Delays were concentrated on the westbound Main Street approach.
- Capitol Boulevard, University Drive and Boise Avenue. This signalized intersection was found to operate with LOS E in the PM Peak Hour. The intersection serves relatively high traffic volumes with a large proportion of left turns, particularly on the southbound approach.

It should be noted that capacity analysis was limited to intersections where ACHD had available traffic counts. Further, this analysis was provided for the PM peak hour only. It is possible that other locations within the study area could experience poor operation during either AM or PM peak periods.

1.6 Key Findings and Moving Forward

PRESERVING ACCESS

The private automobile will continue to be the most common mode of travel in the region and convenient roadway access will help ensure the economic health of downtown. It is critical that the major access routes to into downtown continue to principally serve automobile traffic. Strategies should be pursued to enhance and maintain the performance of the segments and intersections on these corridors for all road users. In some cases, a better balance between automobiles and other users can be established. However, the primary function of these streets should continue to be vehicular access and mobility. The principal access routes into downtown are:

- Interstate 184
- Main Street (west of 16th)-Fairview Avenue Couplet
- State Street
- Warm Springs Avenue
- Broadway Avenue
- Capitol Boulevard
- Americana Boulevard

ROADWAY CAPACITY

The roadway system generally provides a high level of service throughout the study area, particularly in the downtown core. There is adequate capacity on most downtown streets to meet current demands for automobile access. Effective signal timing and the traffic management also help to provide uncongested operation during most of the day. However, there are a limited number of locations that experience peak hour congestion during the concentrated peak hours.

Based on the analysis presented in this report, poor PM peak hour operation (LOS E or F) was documented at four intersections in the study area. Four additional intersections were found to operate with LOS D, indicating that they are approaching capacity. With the exception of the Front Street corridor, intersections with relatively poor levels of service tend to be located on the periphery of downtown. For example, three intersection on Broadway operate with LOS D. While it is important to address existing and forecast traffic flow problems at these locations, the fact that high level of service are common on the vast majority of streets in the downtown core creates opportunities for this multi-modal planning project. The use of alternative modes is more concentrated in the downtown core, and the presence of excess traffic capacity suggests that it will likely be possible to reallocate some excess road capacity and/or right-of-way to benefit alternative modes without seriously compromising traffic operation.

There is a general perception that downtown Boise has significant traffic congestion problems. Based on field observations and traffic data and analysis provided by ACHD, however, it appears that current levels of congestion at most locations are below those typically considered to be unacceptable in other communities. Traffic problems on roads and highways connecting between the study area and outlying areas may contribute to the perception that downtown is congested. While there are heavy traffic volumes concentrated on the major roadways in downtown and some problem areas, travel by automobile is generally convenient and efficient.

Congestion is experienced on Front Street during the afternoon peak hour for westbound traffic from the downtown core connecting to the Interstate 184 on-ramps. The intersections of Front Street with 13th Street and 9th Street both operate with LOS F in the PM peak hour under existing traffic volumes. Vehicle queues regularly extend as far as 6th Street. The resulting congestion can also impact operation on 9th and 6th Streets north of Front Street.

The congestion on Front Street is aggravated by two factors: commute patterns and adjacent development. First, origins for commute trips to downtown are more likely to be located to the west of downtown than from the east. Front Street

Photo 1.11 Front at Fifth Street


Photo 1.12 Main Street in Old Boise with curbside parking

collects traffic from throughout downtown, including the major trip generators such as St. Luke's Hospital area and the downtown core, and provides the principal connection to the west via I-184. This activity is reflected in the high traffic volumes on Front Street during the PM peak hour. Recent development along Front Street has also created more turning activity, particularly at the Courthouse and Winco Foods. Additional turning movements at driveways and cross streets degrades the operation of through traffic. In contrast, Myrtle Street has not experienced the same level of development as Front Street and does not seem to experience comparable levels of congestion in the AM peak (Note: AM peak capacity analysis has not been provided).

KEY FACILITIES

Several key roadways have been identified based on their importance as roadway links and their performance with respect to all road users. These facilities should be given special consideration during the development of the Downtown Boise Mobility Study.

Front-Myrtle Couplet

While this couplet is should be primarily dedicated to automobile traffic, the roadway could be better integrated into the fabric of downtown. Currently, both the physical design and the function of the street create a barrier between Downtown and the River District, the Boise River itself, and Boise State University. The wide cross sections of the two roadways, heavy traffic volumes, and the lack of traffic signals in some locations combine to make this corridor difficult to cross for pedestrians, bicycles, transit and automobiles.

Pedestrian crossing opportunities are particularly limited east of Capitol Boulevard. There are no signalized intersections on Myrtle Street between 5th Street and Broadway Avenue, allowing for uninterrupted traffic flow and higher travel speeds for cars. Crossings for all road users, not just pedestrians, will be increasingly important as additional development activity is expected in the River/Myrtle area. It may be desirable to install additional traffic signals in this area to facilitate crossings. If coordinated signal operation is implemented, it is likely that additional signals would not seriously degrade corridor-wide drive times. Warrant analysis should periodically be conducted at intersections in this area to determine if signals are justified.

There are other opportunities to improve the Front-Myrtle couplet through the downtown core. Physical improvements are possible that would allow it to maintain its functionality and while adding urban design elements and improving connectivity and between areas north and south of the couplet. Potential improvements will be considered during the development of the Downtown Boise Mobility Study.
The Front-Myrtle couplet is the busiest roadway corridor in the study area, providing important access to the downtown as well as for travel though downtown. The corridor will always be an important link in the roadway system for automobiles but design principles can be applied to allow other roadway users to safely and comfortably use this facility while supporting the other goals of the downtown community.

State Street

State Street is the primary access route to areas northwest of downtown and serves heavy traffic volumes. Ada County Highway District, ValleyRide, and local jurisdictions recently completed a study identifying State Street as the first Bus Rapid Transit corridor in the Treasure Valley. Rather than expanding roadway capacity, the agencies sponsoring the study and the general public want to see a transit strategy applied to this corridor to handle forecasted increases in travel demand. Routing of the BRT service should maximize customer convenience and efficiency for ValleyRide.

Right-of-way should be preserved on State Street in anticipation of a future BRT service being introduced along this corridor. At key locations, enhanced passenger waiting facilities will be needed for passengers waiting to use this service.

Capitol Boulevard

This principal arterial roadway provides an important north-south connection that includes a Boise River crossing and direct access to the downtown core. In addition to its traffic function, it is used by two bus routes and the Capitol Boulevard Special Design District calls for strong pedestrian features. It is also an important civic street, providing a spectacular view of the Idaho Statehouse and foothills. Proposals for modifications on this street must be sensitive to the numerous functions it serves.

Main-Idaho Couplet

The Main-Idaho couplet in the downtown core is effective at creating an inviting street environment that balances the needs of multiple transportation modes. An important east-west traffic route, it also includes pedestrian, bicycle and transit amenities. This corridor can be viewed as a model for downtown Boise and should be protected and continuously improved.

15th-16th Street Couplet

These principal arterial streets provide important north-south travel for both vehicular and bicycle traffic.

POTENTIAL FUTURE PEDESTRIAN CORRIDORS AND BOULEVARDS

The Pedestrian section of this report identifies numerous streets as priorities for pedestrian-oriented improvements. These include many of the high traffic volume streets in downtown. Improvements must effectively balance the need for efficient and safe circulation for both traffic and pedestrians.

POTENTIAL FUTURE BICYCLE BOULEVARDS

As discussed in the Bicycle section of this report, several streets have been identified to potentially be designated as Bicycle Boulevards. On a Bicycle Boulevard, modifications are made to enhance bicycle safety and convenience. If implemented, automobile traffic would continue to be accommodated on these streets albeit with a lower priority. Improvements at intersections with streets that carry high volumes of automobile traffic are particularly important, and any impacts on traffic operation must be considered. Suggested Bicycle Boulevards in the downtown core include:

- 3rd Street
- 8th Street
- Washington Avenue

DOWNTOWN GATEWAYS

Downtown Boise is a unique place in the State of Idaho and the Inner Mountain West. It is the State Capitol and, unlike many state capitals, it is also the main urban center for Idaho as well as eastern Oregon, northern Nevada and Utah, and western Wyoming. People come from near and far to seek medical care, access government services or attend special events. Many people who come to downtown may not regularly experience urban environments. The entry points to downtown, or gateways, have the potential to serve an important function to communicate to travelers a sense of arrival, the importance of the downtown as a cultural, economic and governmental center, and to signify a distinct change in urban character.

The gateways to downtown generally function well today from a purely operational standpoint. They do not, however, signal arrival into the downtown of the State Capitol and the largest urban center in the Treasure Valley. Through some signage and urban design elements, providing a sense of arrival to the visitor will help orient visitors and enhance the attractiveness of downtown to visitors and community residents alike. For example, arches, art, signage, and landscaping are regularly employed to create gateway elements in other capital cities.

RE-EVALUATE LEVEL OF SERVICE POLICIES

Traditional policies promote the highest level of service for automobile traffic, and are based on accommodating peak-hour traffic. However, because these policies often require that a large amount of right-of-way be used for automobile traffic this can hinder the development of facilities for other transportation modes, such as pedestrian and bicycle traffic. This is not necessarily desirable in Downtown, where greater emphasis has been placed on developing a thriving, pedestrian-

Downtown Boise Mobility Study
LOS Policy Application
Figure 1.6

and bicycle-accessible street environment. More flexible LOS policies in Downtown would allow for a more balanced approach.

Suggested revisions to downtown LOS policies have been detailed in a previous technical memorandum and are summarized below. It is important to note that these policies are recommended only for Downtown and are not intended to be applied on a citywide basis. This includes all of the project study area with the exception of two buffer zones to protect residential areas. These two buffer zones are illustrated in Figure 6.

Use LOS as a guideline rather than a standard
In some cases, maintaining an LOS standard may be less desirable than allowing development or other changes to occur that brings other community benefits.

Apply different LOS standards for different times of day
This would be a more flexible planning approach that would accept lower levels of service during peak periods in downtown. Level of Service E would be considered acceptable during the AM and PM hours, while LOS D is desired at all other times.

Consider the pedestrian, bicycle and transit environment
Rather than simply looking at the LOS for roadway traffic in isolation, other modes should be considered. Exceptions to the LOS guidelines should be considered in cases where overall downtown mobility would benefit by accepting lower performance for automobiles if benefits for pedestrians, bicycles or transit are provided.

2. Transit

This element of the Downtown Boise Mobility Study evaluates the current transit system and its enhancement to increase access to, and circulation in, downtown. This element also supports many of the overall DBMS goals and gives particular attention to:

Goal 2: Maximize transportation system efficiency and develop a downtown transportation system that includes and integrates a variety of travel modes, and promotes the use of alternatives to the automobile.

Goal 3: Link sub-districts, activity centers and the parking supply in downtown Boise through a well-designed, functional transportation system.

Goal 4: Identify how to enhance the performance of the downtown street system and improve mobility while at the same time make the system compatible with a people-oriented, urban-intensity downtown.

This chapter is organized into the following sections:

2.1 Existing Conditions

2.2 Downtown System Overview

2.3 Regional Transit Connections

2.4 Bus Stop Boarding Activity

2.5 Passenger Facilities

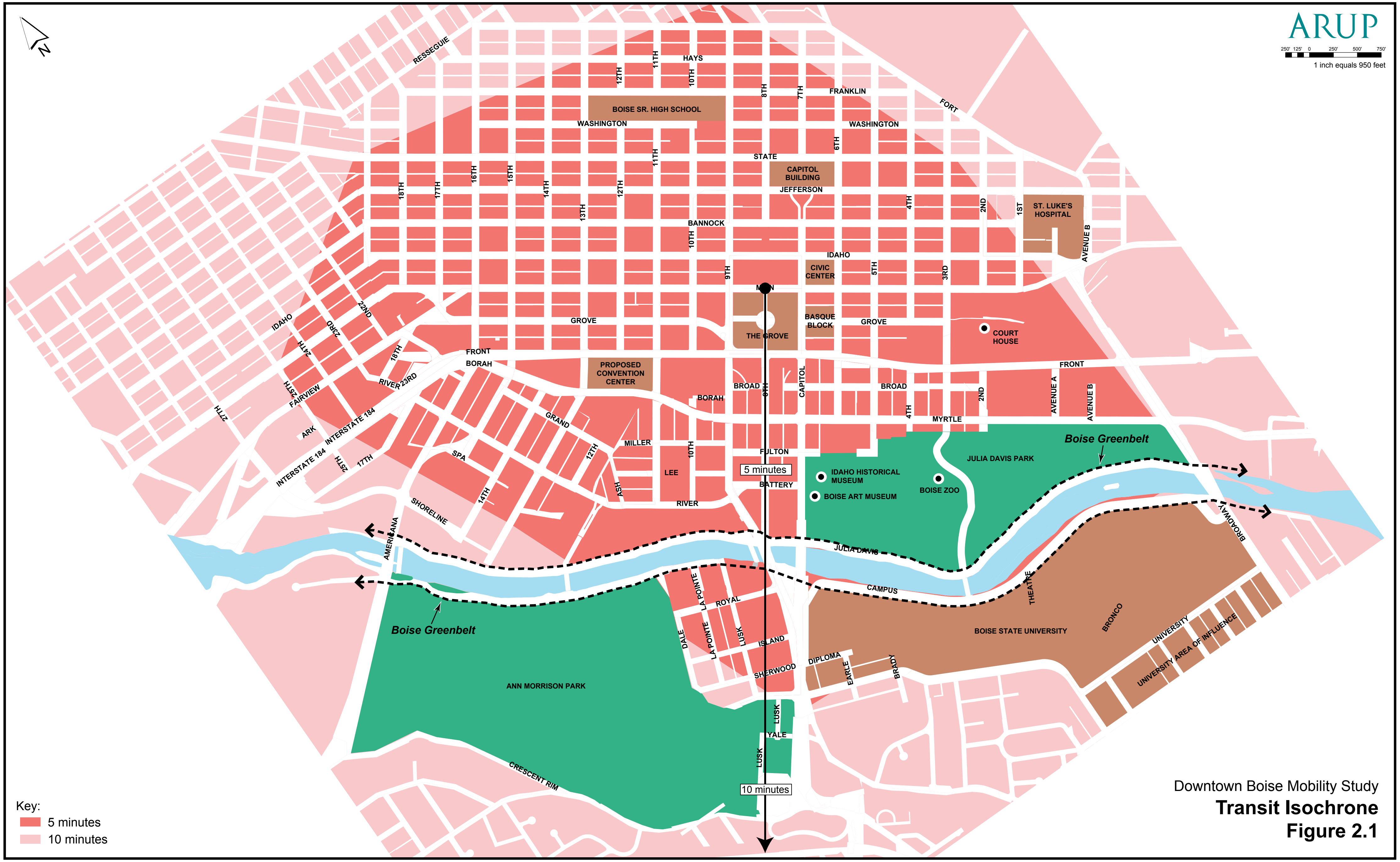
2.6 Key Findings and Moving Forward

2.1 Existing Conditions

ValleyRide is the project manager for the Downtown Boise Mobility Study and is also the main provider of transit service in the Treasure Valley region. Currently, ValleyRide operates 15 routes serving the downtown study area. Other service providers provide connections to downtown from outlying parts of the region. ValleyRide provides local bus service within the City of Boise and uses downtown streets as the primary timed-transfer point for the local system. Two other regional commuter bus services provide intercity service from western Ada County and Canyon County to downtown Boise. These services are: (1) Treasure Valley Metro, which provides service between Nampa, Meridian and downtown Boise and (2) Commuters Bus, which provides peak-only commuter service from Caldwell, Middleton, Star and Eagle into downtown Boise. Equally important to the transit providers is the CommuterRide program which provides ridematching and vanpool services discussed in the Transportation Demand Management (TDM) element of this report.

As the regional public transportation agency in Ada and Canyon counties, ValleyRide is challenged with providing transit services to a population accustomed to driving and living in a low-density, suburban and rural environment. ValleyRide already enjoys some success in this arena. ValleyRide's success is demonstrated in 1998 by a 2.0% mode share for transit in Ada County alone. Voter approval creating the two county agency in 1999 further demonstrates this success with voter recognition that transit should play a more important role in the Treasure Valley. As Boise and the Treasure Valley region continue to grow, transit will be a more important option for enhancing mobility choices, reducing congestion, and helping employers attract and retain employees. This study element is an opportunity to evaluate the current provision of transit service in downtown and identify ways of doing more with less. Recent budget cuts for ValleyRide require the agency to be nimble and resource efficient. This means targeting resources to the most productive routes while capitalizing on opportunities for service efficiencies and for partnerships throughout the region. For the purposes of this study, recommendations will be mindful of regional context but will be focused on the downtown community.

Photo 2.1 Buses leaving transit mall on Idaho after timed transfer



Downtown Boise Mobility Study
Transit Isochrone
Figure 2.1

2.2 Downtown System Overview

Downtown Boise enjoys the highest level of transit service in the entire Treasure Valley area. Most service operates on frequencies of 30-60 minutes. On the regional system, ValleyRide operates 15 fixed routes into the downtown and Boise State University area. Most routes serve either one of the downtown stations or the Administration building on University Drive at the south end of the Boise State campus. Currently only two ValleyRide routes, the 25 Five Mile and the 26 Southwest Boise do not operate in central Boise. These two routes serve the western part of Boise and lay over at the Towne Square Mall Transit Center.

Thirty to sixty minute service frequencies ensure people who need transit can use transit to travel, but it makes transit a less attractive option for local travel or downtown circulation than walking, biking or even driving. Service frequencies are determined in part by potential ridership and in part by available funds to subsidize operations. Nearly all transit service requires some level of subsidy to cover operating costs - in large cities and small. Thus, in an environment of limited funding, service levels must be set in accordance with what is available to subsidize operations and allocated to where the needed is greatest. Some of the challenges faced by ValleyRide to build ridership include:

- Plentiful free or low cost parking downtown
- Limited availability of funding to support service expansion (frequency and geographic extent of service)
- Limited information about transit
- Low-density development patterns
- Lack of passenger facilities

For these reasons, the bulk of passengers riding on the ValleyRide system are transit dependent - meaning they either can not afford a car or are unable to drive one. Downtown holds the greatest potential for attracting new riders to the system given the development patterns, the pedestrian network, and the level of service relative to the rest of Treasure Valley. Tapping this "choice rider" potential, however, will be challenging given the current funding climate.

TRANSIT GATEWAYS TO DOWNTOWN

Gateways are points of entry into the downtown and these gateways provide important links from downtown to the region. There are several gateways to downtown for transit service:

East / West Gateways
- State Street
- Fairview
- Main/Idaho

North/South Gateways
- Capitol
- Broadway
- Americana

State Street will become an increasingly important gateway as Bus Rapid Transit service envisioned for this corridor is implemented. Bus Rapid Transit for Boise will offer a high frequency service with high quality vehicles, passenger waiting areas, signal priority, and other elements.

Most transit flows into the downtown from the west and from the south. There is very little through travel meaning most passengers use transit to come to downtown as their final destination or come downtown to transfer to a different route.

DOWNTOWN TRANSIT TRAVEL TIMES

Once on board a transit vehicle, passengers can reach most destinations within the study area within 10 minutes travel time. The transit travel time isochrone map on the following page depicts travel times on board the transit vehicle. It is somewhat misleading as the map does not account for waiting time at either bus stops or at the transit center downtown. Nonetheless, the map does demonstrate how easy travel

Photo 2.2 Idaho Street Transit Mall

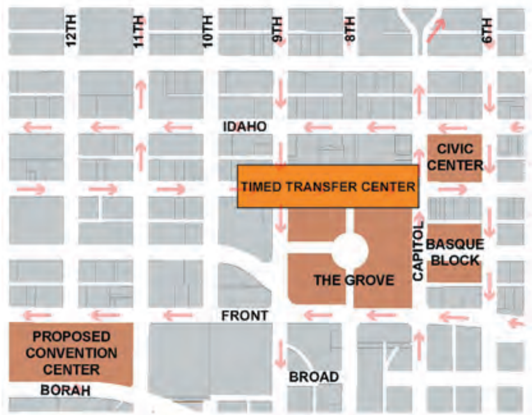


Photo 2.3 Proposed interim Downtown Transfer Center

can be on transit in the downtown study area. With higher frequencies, transit can play an important role for downtown circulation.

FLAG STOP SYSTEM

ValleyRide currently utilizes a flag stop system. Rather than operate on a fixed stop basis, services operate on fixed routes but passengers must flag the bus to indicate they wish to board. This system increases customer convenience in that passengers may hail a bus at any intersection, but it also makes the system more difficult to understand and access for those unfamiliar with riding transit. Without bus stop signs, passenger information and passenger amenities, a new user would have a difficult time knowing where and when they can board the transit service.

TIMED TRANSFERS AND DOWNTOWN

Services are provided on a timed transfer basis. The infrequency of bus service makes transferring a crucial aspect for riders traveling throughout the entire ValleyRide network. On transit systems with longer headways, such as ValleyRide, timed transfers become an important part of the passenger's trip because they provide greater connectivity between origins and destinations. Timed transfers occur when multiple bus routes are scheduled to arrive at a transfer center at about the same time. Typically transfer points or transit centers are situated in the heart of the downtown area providing an actual destination for riders as well as a transfer location.

Photo 2.4 Transit providers in Downtown

EXISTING TRANSFER CENTER

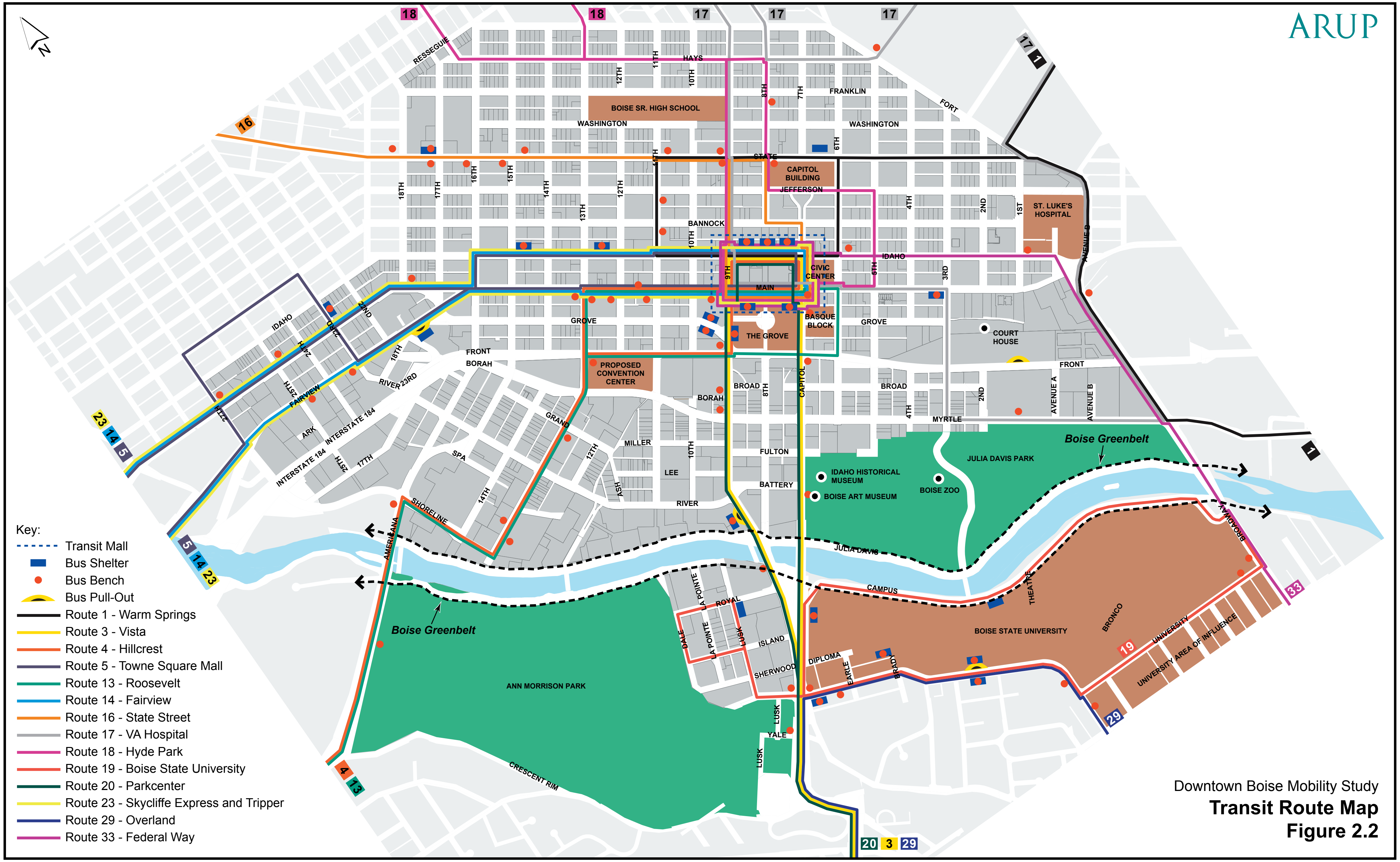
In 1990, CCDC constructed the transit mall located on Main and Idaho in downtown Boise using Federal Transit Administration funds. Construction of the transit mall was part of CCDC's urban renewal work done in downtown core.The mall was designed to provide a high quality waiting area for passengers and walking environment for transit riders who become pedestrians to reach there destination. It was not intended to function as the timed transfer point for the regional system. Over time, however, the center assumed that function and is now an important pulse point for transit services. Buses use the Main and Idaho couplet between Capitol and 9th to drop and load passengers traveling to and from downtown destinations, as well as through passengers transferring to another route. ValleyRide has established 6 transit stations, three on Idaho and three on Main, which they refer to as stations. Each of these stations has a number to assist passengers in making connections. the cluster of stations has in effect become a transit transfer center. Because Boise utilizes a timed transfer system, it is important that buses all arrive and depart in concert with one another to ensure passengers may connect from one service to the next. Further, once the buses are downtown, these stops function as layover facilities where bus drivers may take breaks and where buses are held to allow passenger transfers to occur. While this facilitates regional transit connections, it creates some challenges for ValleyRide patrons and downtown businesses. Main issues of concern with the downtown transfer facility include:

Benefits

- Well designed transit shelters enhance the downtown street environment.
- Transit shelters provide readily available passenger information for the public.
- Transit is a prominent feature of downtown.
- Passenger waiting areas are attractive.
- Transit activity enlivens the street environment.

Challenges

- Passengers may walk a distance of two to four blocks to catch their connecting bus and it is difficult to transfer between a route that stops on Idaho and one that stops on Main.
- Supervisors have difficulty managing the system.
- Buses dwelling on street in front of local merchants create unwanted noise, visual obstructions, and air pollution.


ARUP
Key:
Transit Mall
Bus Shelter
Bus Bench
Bus Pull-Out
Route 1 - Warm Springs
Route 3 - Vista
Route 4 - Hillcrest
Route 5 - Towne Square Mall
Route 13 - Roosevelt
Route 14 - Fairview
Route 16 - State Street
Route 17 - VA Hospital
Route 18 - Hyde Park
Route 19 - Boise State University
Route 20 - Parkcenter
Route 23 - Skycliffe Express and Tripper
Route 29 - Overland
Route 33 - Federal Way
Downtown Boise Mobility Study
Transit Route Map
Figure 2.2
BOISE SR. HIGH SCHOOL
CAPITOL BUILDING
ST. LUKE'S HOSPITAL
CIVIC CENTER
BASQUE BLOCK
THE GROVE
PROPOSED CONVENTION CENTER
COURT HOUSE
JULIA DAVIS PARK
IDAHO HISTORICAL MUSEUM
BOISE ART MUSEUM
BOISE ZOO
Boise Greenbelt
ANN MORRISON PARK
BOISE STATE UNIVERSITY
UNIVERSITY AREA OF INFLUENCE

BICYCLES AND TRANSIT

The regional bicycle network functions as an extension of the ValleyRide transit system. Bicycles help extend the reach of transit by closing the gap between the origin / destination and the transit stop. Most destinations for transit riders are within reach of a transit stop – many a mile or less. On a bicycle, transit patrons can travel from the bus stop to the final destination within minutes. Together, these two modes leverage the beneficial attributes of each and form an ideal partnership between two modes of transportation.

ValleyRide coaches are equipped with two bicycle racks per vehicle to allow cyclists to use public transit to reach destinations from outside of downtown or vice versa. The racks are mounted on the front of the bus and can be used whenever a passenger boards a vehicle. Customers are responsible for placing their bicycles on the rack itself. There is no additional charge for using the rack. Bicycle racks on buses are important features providing greater regional mobility for people who primarily use their bicycle for transportation. They also benefit transit customers who live, work, shop, or go to school near a transit stop but far enough from the stop that a walk would take too much time. The bicycle helps make either end of the transit trip occur more quickly.

2.3 Regional Transit Connections

The express bus routes provided by TVM and Commuters Bus operate in the downtown area connecting with local fixed-route service. TVM's Commuter Express travels along the Main/Idaho couplet with stops at downtown stations such as Main and Capitol in the morning and Idaho and 9th in the evening. Commuters Bus routes pick up and drop off passengers several blocks from the downtown stations making transferring to local ValleyRide service inconvenient. In addition, transfers from both commuter bus services to the local routes are not always well-timed forcing long waits for passengers during some periods of the day.

TREASURE VALLEY METRO (TVM)

TVM's Commuter Express route serves Meridian and Nampa with inbound and outbound trips to downtown Boise and major employers along the route. TVM operates weekdays, providing five trips during the AM and PM peak commute periods and a two midday trips. The first bus in the morning leaves BSU West Campus in Nampa at 5:25 AM and the last bus of the evening arrives at BSU in Nampa at 6:41 PM. Morning express buses travel east along Main, north on Capitol with service to State and 5th and St. Luke's Regional Medical Center. Evening service follows similar routing, but travels west on Idaho stopping at the downtown station at Idaho and 9th.

GREYHOUND

Greyhound buses operate out of a facility at 12th and Bannock located within five to six blocks of the downtown stations on Main/Idaho and Capitol/9th. Although walking from Greyhound to the transit tranfer points is an option, passengers may also take ValleyRide routes 5, 14 and 23 which travel along Idaho and drop off/pick up passengers one block from the Greyhound Station. Greyhound Bus Lines operate three eastbound (to Salt Lake City) and three westbound (to Portland) buses daily, with morning, afternoon and evening departures.

COMMUTERS BUS

Commuters Bus is a private transit company that operates two express routes connecting the communities of Nampa, Caldwell, Middleton, Star and Eagle to central Boise.

Route 1 Caldwell/Nampa to Boise

The route travels along I-84 from Caldwell and Nampa to downtown Boise and Boise State University before terminating service at the Boise airport. The route makes three stops in Caldwell and one in Nampa. Service departs Caldwell Park and Ride Lot at 6:30 AM and arrives at 11th and Main streets in Boise at 7:25 AM. The evening service leaves the airport area in Boise at 4:45 PM and arrives at the Jackson's Texaco Park and Ride Lot in Nampa at 5:45 PM and United Oil Bulk Plant Park and Ride Lot in Caldwell at 5:55 PM.

Route 2 Highway 44 to Boise

This route serves the communities of Middleton, Star and Eagle. The morning bus leaves the 44 Quick Stop Park and Ride Lot in Middleton at 6:30 AM and makes one stop in Star and one stop in Eagle before arriving at the Transportation Department on State Street in Boise at 7:20 AM. The evening service leaves Parkcenter in Boise at 4:45 PM and stops in Eagle at 5:35 PM and Star at 5:50 PM before arriving at the Middleton Mall at 6:00 PM.

VALLEYRIDE LINE BY LINE OVERVIEW

ValleyRide provides all day local service throughout Boise and Garden City. Figure 2 shows the line-by-line network of ValleyRide's transit routes in downtown, with lines color-coded to denote frequencies. The following are route-by-route descriptions of the current ValleyRide bus service. Refernces to stations are to bus stops clustered on Main and Idaho between Capitol and 9th that are from the de facto transit transfer center in downtown Boise.

#1 Warm Springs

The #1 Warm Springs route travels west along Idaho from Station 3, north on 11 th Street and east along State Street before making a one-way loop south on Broadway connecting to Park, Walnut, Warm Springs, Bacon, and Washington. Service runs every 30 minutes in the morning and evening and every 60 minutes during mid-day. The Warm Springs bus serves east end destinations such as the Morrison Knudsen Nature Center, Municipal Park, Idaho Museum of Mining and the Botanical Gardens.

#3 Vista

The #3 Vista route provides service every 30 minutes in the mornings and evenings and every 60 minutes during mid-day. The route begins at Station 1 at Idaho and Capitol and travels south along Capitol and Vista serving Boise State University, the Library, Boise Art Museum, and the zoo before turning around at Vista and Canal to reverse the direction of the route.

#4 Hillcrest

The #4 Hillcrest route runs west from downtown along Main, 13th Street, Americana, and Emerald before making a one-way loop beginning at Orchard and Malad. The route provides service to the neighborhood southwest of downtown including the Hillcrest Shopping Center and Borah High School. Buses run every 30 minutes in the morning and evening and every 60 minutes during mid-day.

#5 Towne Square Mall

The #5 Towne Square Mall route provides a link between two of the busiest activity centers in Boise - Towne Square Mall and downtown. The route travels west along Main and Fairview from Station 3 at 8th and Idaho, south on Orchard, and west on Emerald before reaching the mall. The return trip downtown follows a slightly different routing. Buses run every 30 minutes in the morning and evening and every 60 minutes during mid-day.

#13 Roosevelt

The #13 Roosevelt route provides service from downtown Boise to the airport. Buses travel from Station 6 at 8th and Main, south on 13th Street to Shoreline, Americana and Latah. Buses run every 30 minutes in the morning and evening and every 60 minutes during the mid-day.

#14 Fairview via Cole Road
Route #14 Fairview via Cole Road travels west along Idaho from Station 4, south on 16th and west on Main/Fairview before making a one-way loop on Cole Road, Goddard, and Maple Grove. The route provides service to the Department of Health and Welfare, Westgate Shopping Center, Shopko, and Capital High School. The service runs every 60 minutes from 6:15 AM to 8:15 AM and from 2:15 PM to 6:15 PM.

#14 Fairview via Maple Grove
Route #14 Fairview via Maple Grove runs hourly west from downtown along the same routing as the 14 Fairview via Cole Road. The Maple Grove route deviates from the Cole Road route by reversing the loop at the end of the trip. The route provides service to the Department of Health and Welfare, Westgate Shopping Center, Shopko, and Capital High School.

#16 State Street via 28th Street
The #16 State Street via 28th Street route provides service every 60 minutes from Station 5 at Main and 9th to Northgate Shopping Center at State and Gary Lane. The buses run west along State Street from downtown before turning north on 28th and returning to State Street at Ellen's Ferry.

#16 State Street via Pierce Park
Route #16 State Street via Pierce Park provides service every 60 minutes during the morning and evening peak periods. Buses operate along the same downtown routing as the 28th Street bus with a deviation at the loop north of State Street between 28th Street and Ellen's Ferry.

#17 VA Hospital
The #17 VA Hospital route provides service every 60 minutes from Station 6 at Main and 8th to activity centers such as Ada County Courthouse, Discovery Center, St. Luke's Regional Medical Center, Boise Senior Center and the Veteran's Hospital.

#18 Hyde Park
The #18 Hyde Park route travels north from Station 7 on 8th Street, west on Hays and north on 13th making a one-way loop on Brumback, Harrison, Hill and 20th Street before returning to downtown. Service runs every 30 minutes in the morning and evening and every 60 minutes during the mid-day. The bus serves the Hyde Park Historic District and Boise High School.

#19 BSU Shuttle
The #19 BSU Shuttle route travels a one-way loop through the Boise State University campus. The shuttle is operated by a private operator on contract with BSU. Buses run primarily on Capitol, Campus Lane and University Drive before returning to the beginning of the route at Lusk and Royal. Service runs every 15 minutes in the morning and evening and every 7 - 8 minutes during mid-day.

#20 Parkcenter
The #20 Parkcenter route runs south of downtown on Capitol, University, Parkcenter and Apple serving activity centers such as BSU, Parkcenter Mall, Timberline High School and the Boise Library. Service runs every 30 minutes in the morning and evening and every 60 minutes during mid-day.

#23 Skycliffe Express
The #23 Skycliffe Express provides limited stop service from Station 4 in downtown to Garden City and Hewlett Packard located XX miles northwest of the central business district. Buses travel west on Idaho, south on 16th, west on Main/Fairview to Chinden before making a loop at Cloverdale. The route has two morning trips and two evening trips with 60-minute headways.

#23 Skycliffe Tripper
The #23 Skycliffe Tripper provides one morning trip and one evening trip between downtown Boise and Hewlett Packard. The route also provides service to St. Mark's Catholic Church at the intersection of Northview and Cole.

#24 Garden City
The 24 Garden City route connects Station 2 at 8th and Idaho in downtown Boise to Garden City destinations along Chinden. The route serves Garden City, City Hall, Wal-Mart and ITD District 3. Buses operate at 60-minute frequencies from 6:45 AM - 7:45 AM, 10:45 AM - 11:45 AM and 3:45 PM - 5:45 PM.

#29 Overland
The #29 Overland route provides service between two major activity centers - Towne Square Mall and Boise State University. The route travels along Lincoln and University Drive in the BSU area with no stops in the central business district. Service runs every 30 minutes in the morning and evening and every 60 minutes during mid-day.

#33 Federal Way
The #33 Federal Way route provides service from downtown along the Main/Idaho couplet before turning south on Broadway. Buses stop at Boise State University, the outlet mall and Micron in southeast Boise. Service runs every 30 minutes in the morning and evening and every 60 minutes during the mid-day.

Photo 2.5 Santa Monica, CA bus stop with seating, information and bike rack

2.4 Bus Stop Boarding Activity

Downtown Boise and Boise State University have the highest level of bus stop boarding in any area of the ValleyRide system. The top 20 bus stops in the downtown according to data collected for the Regional Operations and Capital Improvement Plan (ROCIP) are:

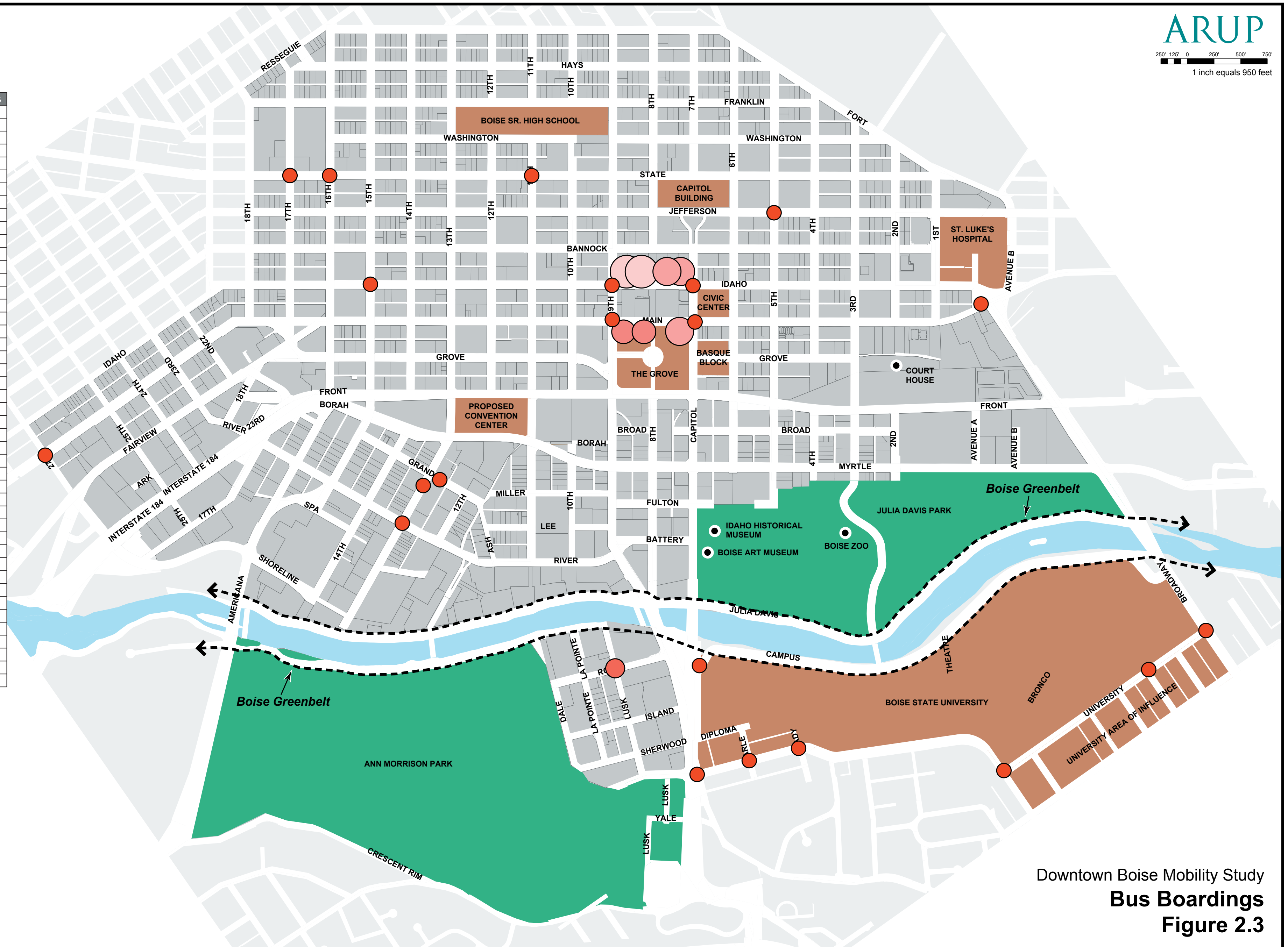
Stop Location	***Boardings***
Station 3 (8th and Idaho)	278
Station 4 (Idaho and 9th)	204
Station 7 (Main and Capitol)	161
Station 1 (Idaho and Capitol)	159
Station 2 (Idaho and 8th)	135
University Dr. and BSU Admin	130
Station 6 (Main and 8th)	113
Station 5 (Main and 9th)	93
Lusk St and Royal Blvd	54
East Stadium	53
Lusk St and Quads	45
Lusk St and University Park Apt	44
Sports Medicine	41
Campus Ln and West Stadium	40
Campus Ln and Library	38
University Dr and Public Affairs	36
Idaho and 15th	35
Lincoln Ave. and University Dr.	34
Campus Ln and Science and Nursing	29
State St. and 16th	26

Photo 2.6 Downtown Seattle passenger waiting area on Pike

Photo 2.7 Portland Streetcar stop

Bus Stop Location	Total Ons
Station 3	278
Station 4	204
Station 7	161
Station 1	159
Station 2	135
University Dr. & BSU Admin	130
Station 6	113
Station 5	93
Lusk St & Royal Blvd	54
East Stadium	53
Lusk St & Quads	45
Lusk St & University Park Apt	44
Sports Medicine	41
Campus Ln & West Stadium	40
Campus Ln & Library	38
University Dr & Public Affairs	36
Idaho St. & 15th St.	35
Lincoln Ave. & University Dr.	34
Campus Ln & Science and Nursing	29
State St. & 16th St.	26
9th St. & Main St.	24
Campus Ln & Business Bldg	22
Morrison Center	20
Campus Ln & Towers	19
13th St. & Grand Ave.	18
State St. & 11th St.	18
University Dr & Special Events	18
Main St. & Capitol Blvd.	17
State St. & 17th St.	17
University Dr & Technical Ed.	17
13th St & Grand Ave	16
13th St. & River St.	16
Capitol Blvd. & Idaho St.	16
Broadway Ave. & University Dr.	15
University Dr & Grant St	15
Idaho St. & 9th St	13
Capitol Blvd & University Dr	11
University Dr & Student Union Bldg	11
Capitol Blvd & Campus Ln	10
State St. & 5th St.	10
Broadway Ave. & Beacon St.	9
Main St. & 27th St.	9
Main St. & Broadway Ave.	9
University Dr & Brady Ln	9
University Dr & Earle St	9

Key:
- 9 to 40 Boardings
- 41 to 75 Boardings
- 76 to 130 Boardings
- 131 to 200 Boardings
- 201 to 300 Boardings



Downtown Boise Mobility Study
Bus Boardings
Figure 2.3

2.5 Passenger Facilities

Providing adequate passenger facilities is important to increase passenger comfort, attract new users to the system, and to inform the public about where and how to board the transit system. The transit stop is literally the transit provider's business card to customers and to the public. These facilities provide an important message about transit and its role in the local community. These facilities can provide weather protection, information, and seating. As wait times increase, the importance and value of passenger facilities also increase. When transit comes frequently and reliably, sometimes a bus stop sign will suffice. When transit runs only once or twice an hour, a place to sit, information about schedule, and protection from the elements have greater importance. If a passenger is elderly, standing at a bus stop for ten minutes or more may be quite uncomfortable. If passengers are in a hurry, having schedule information will allow them to plan their trip more effectively. Typical passenger facilities can range from a simple bus stop sign on a sidewalk or paved area to higher quality passenger amenities such as shelters, seating, posted schedules, or even indoor waiting areas.

Some passenger facilities are located downtown, the most noteworthy of which are found along Main and Idaho. The passenger facilities on Idaho and Main between 8th and Capital are attractive, well-designed and include system maps and schedule information along with leaning bars and protection from weather. With the exception of these downtown facilities, central Boise has few on-street facilities or passenger amenities. The facilities are of varying quality. In many cases, the siting of bus benches and shelters does not appear to be guided by policies concerning bus stop boarding activity or passenger need. Bus benches are provided by a private contracting company. Siting of the benches and shelters is the responsibility of ACHD.

2.6 Key Findings and Moving Forward

Downtown Circulation
A timed transfer system delivers the greatest benefit to passengers who need to make transfers between routes. It does not promote downtown circulation as service is infrequent and oriented toward regional connections. Passengers traveling through downtown en route to another location are often required to transfer to another bus line. Timed transfer systems are designed to allow these transfers to happen efficiently, eliminating long wait times. Most timed transfers occur at a single location, or on a two-way corridor so that passengers can quickly find and board the bus they are transferring too. To facilitate downtown circulation, recommendations from the Downtown Circulation Working Group should be implemented.

Bus Stop Improvement Program
The lack of fixed bus stops, shelters or informational signs is currently a major obstacle for system use, especially for new riders who are unsure of bus schedules or routing. A cohesive bus stop system including signage and benches is crucial to informing the public where transit is available in the downtown area. The development of a fixed stop system and on-street capital investment plan will be developed in the spring of 2004 as part of the ValleyRide Regional Operations and Capital Improvement Plan (ROCIP).

The lack of a downtown transit center is an issue both for the efficient function of local bus services and the connectivity of regional and intercity public transportation serving downtown Boise. ValleyRide should also establish policies for providing passenger facilities using these policies, ValleyRide should develop a program for enhancing bus stops, particularly downtown.

Dedicated Funding
Transit services are limited in the Treasure Valley because an ongoing source of financial assistance is not available. A major funding source would allow for extensive system expansion or for more frequent transit service. To implement

Photo 2.8 Bus benches on Main

Photo 2.9 Bus bench in shelter on Ninth

Transit


Photo 2.10 Bronco Stadium and adjacent parking

Photo 2.11 Eighth Street corridor connection to the Boise Greenbelt

recommendations from the Downtown Circulation Working Group and from the Regional Operations Capital Improvement Plan, a dedicated funding source for transit capital and operating needs must be established.

Downtown Transfer Center

Developing a true downtown transfer center or multi-modal center could offer great benefit for transit customers, ValleyRide operators, and the local business community. Such centers usually provide an indoor or sheltered waiting area, food, beverages and convenience items, passenger information and connections between multiple transit and regional transportation providers. In some cases, they also include retail shops and restrooms. A multi-modal center may take many years to design, develop and fund. Thus, the DBMS is recommending both an interim solution and a long-term solution:

Interim Solution

The short-term recommendation is that the transfer/layover function be moved to the following street frontages:

- South frontage on Main between Capitol and 8th (existing transfer location)
- South frontage on Main between 8th and 9th (existing transfer location)
- West frontage on 9th between Main and Grove (currently on-street parking)

This would require the elimination of just three to four on-street parking stalls on the west side of 9th between Main and Grove and would require little or no change to facilities on Main. We estimate this configuration could accommodate seven to eight vehicles on Main and three vehicles on 9th, surpassing the short-term vehicle requirement during peak hours. This configuration meets short-term goals of

1. Removing bus layover from Idaho (although buses would still provide drop-and-go service on Idaho),
2. Clustering the transfer stations on street frontages that have only minor amounts of retail, and removing them from one of the prime retail streets in downtown,
3. Increasing transfer convenience and passenger access by bringing vehicles together in a single area within easy walking distance of one another, and
4. Making it easier for ValleyRide to monitor system performance.

Long-Term Solution

A long-term solution for the downtown multi-modal center will hinge on a number of factors including what is implemented from the ROCIP, recommendations from the Downtown Circulation Working Group and deliberations about the Boise State University Multi-modal Center. Considering the future needs of Greyhound will also be important. The long-term solution will be developed for inclusion in the Transportation System Plan.

Downtown Circulator

There is tremendous interest in providing a downtown circulator to meet the transit needs for downtown residents, workers, shoppers and students. Downtown circulators can be very effective at serving trip needs throughout the day if services are convenient, quick, have high frequency, and are easily identifiable to the riding public. The Downtown Circulation Working Group is seeking to define a route or routes of service along with the preferred transit technology for downtown circulation. The group met once in January to review options and provide some overall guidance. The recommendations will be used to develop two options for further consideration.

THE FUTURE OF TRANSIT IN DOWNTOWN BOISE

Transit can play an important role in providing for the transportation needs of the downtown community. Providing new or modified services in the downtown will require careful consideration for how these changes will affect the regional system. Current regional operations do not lend themselves to downtown circulation. If all the recommendations of the ROCIP are implemented, it is possible that the transit system can help provide more travel options within downtown. A downtown circulator is also an option. Early, quick implementation steps might include developing a bus stop improvement program and moving to more ambitious steps as funding and policy changes allow. Any changes, enhancements or expansions to the transit system will require an expansion of funding to allow ValleyRide to cover the costs of the new or expanded service.

Photo 2.12, 2.13 Transit Center in Eugene, OR

Photo 2.14 Portland bus stop

3. Bicycles

Bicycling is ideally suited for urban environments as bicycles consume small amounts of roadspace, they do not pollute, they are quiet, and they are easy to store. They are largely an untapped resource to enhance urban mobility. Bicycling is commonly associated with European and Asian countries that have planned for and support bicycle travel. Many cities in the United States have the ideal topography and climate for cycling, yet this mode gets infrequent use because the transportation planning framework rarely addresses the needs of cyclists in a meaningful way. Cyclists share many of the same needs and concerns as pedestrians – safe facilities, slower moving traffic, direct paths of travel, more crossing points on busy roads, and good traveler information. Thus, planning for cycling will have cross benefits for pedestrians and planning for pedestrians can have cross benefits for cyclists. Cyclists also need a secure place to store their bikes and safe roadway facilities to share with faster-moving traffic. Well-designed roadways that support pedestrian and bicycle travel will help support the economic development goals of the Downtown Boise Mobility Study.

Bicycles are ideal for shorter trips within cities. According to the U.S. Department of Transportation, one-quarter of all trips in this country are under one mile and about 40% are under two miles. This is the target market for any bicycle program. A 1% shift in auto trips to cycling trips will achieve a 2 – 4 % reduction in air pollution from cars. Thus, encouraging cycling in Boise City and in Treasure Valley can hold great promise for overall air quality.

The transit system can extend the reach of bicycles. With rack-equipped vehicles, cyclists can use their bikes to close the gap at either end of their transit trip, making both transit and cycling a more convenient option. Integrating the bicycle and transit networks is beneficial to both modes.

Bicycling is also important for the health and quality of life of local residents. Bicycling for transportation needs is an ideal way to introduce activity back into people's lives and aids in the struggle for greater public health, combating the rise of obesity and associated diseases. Rather than using a gym or other planned activity program, people can use their travel activities to make their lifestyles more active.

The bicycling element supports many of the goals of the DBMS. Most specifically, the bicycling element responds to the following goals:

Goal 2: Maximize transportation system efficiency and develop a downtown transportation system that includes and integrates a variety of travel modes, and promotes the use of alternatives to the automobile.

Goal 3: Link sub-districts, activity centers and the parking supply in downtown Boise through a well-designed, functional transportation system.

Goal 4: Identify ways to enhance the performance of the downtown street system and improve mobility while at the same time making the system compatible with a people-oriented, urban-intensity downtown.

This chapter is organized into the following sections:

3.1 Key Findings

3.2 Downtown Bicycling Conditions

3.3 Existing Bicycling Facilities

3.4 Deficiencies in the Existing Network

3.5 Addressing Deficiencies and Expanding the System

3.6 Conclusions and Moving Forward

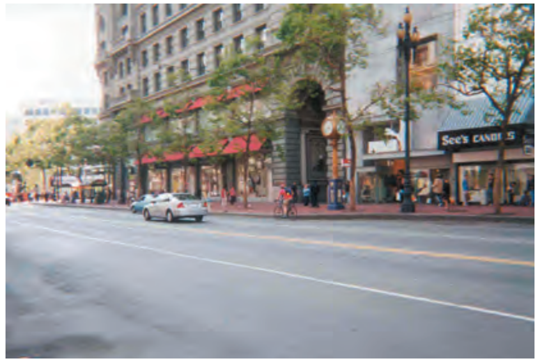


Photo 3.1 Bicyclist in downtown San Francisco


Photo 3.2 Street between Main and Idaho


Photo 3.3 Bicyclists in San Rafael, CA

Photo 3.4 Ohlone Greenway

Photo 3.5 Bike Lane in Golden Gate Park with curbside parkway

3.1 Key Findings

Overall, downtown Boise has great potential for becoming a bicycle-friendly environment. Boise has the right blend of topography, climate, land use, high tech employees, and students for becoming a noteworthy place for cycling. Other cities such as Boulder, CO, Cambridge, MA, or Santa Barbara, CA, are all well known for offering a high quality bicycling environment. Boise could become a similar place if only a few small steps are taken. The existing network needs some enhancements and expansion. Establishing a forum for communication with the bicycling community may also help ongoing maintenance and planning needs. key findings from this report include:

- Where available, Boise offers high quality cycling facilities and environments. The Boise Greenbelt and the 15th/16th Street corridors are two such examples.
- Most destinations in downtown are quickly and easily reached by bicycle. Bicycling can offer a faster and more convenient form of mobility in the downtown area when compared to driving or transit.

3.2 Downtown Bicycling Conditions

Bicycles are an ideal mode of transportation for downtown circulation. While some think of transit and walking as the predominant form of downtown travel, developing a robust network of cycling facilities and supporting infrastructure would allow members of the downtown community to use bicycles for daily trips. Bicycles are a low cost way for people to travel from St. Luke's to Boise State University or from the Cultural District to the Capitol Building. With the right blend of paths, trails, and routes, the bike puts most downtown destinations within easy reach.

Downtown Boise already has an active cycling community. Bikes are regularly seen on streets and sidewalks, and bicycle parking serving local merchants is regularly filled to capacity. The topography is flat and grade changes are slight. Cyclists also have many alternatives open to them; they can ride on side streets, in bike lanes, on bike paths such as the Boise Greenbelt or Pioneer Pathway, or in general traffic if that is desired. Bicycle parking is plentiful in the downtown core, although it is heavily utilized, which forces cyclists to use trees, lamp posts, or parking meters to secure their bicycles.

With Boise State University a short ride away, bicycles represent a convenient form of transportation to link the university with the downtown business district. Universities and university towns often have higher than average bicycle use given the convenience of having a bicycle on campus, parking restrictions, parking costs, and the low cost of cycling as a transportation mode.

Boise State University is pursuing a number of opportunities to expand the pedestrian and bicycle path system on campus. This program will widen existing pathways, establish full connectivity between existing pathways, and forge new pathways. Boise City Parks & Recreation and BSU jointly submitted an ITD Transportation Improvement grant to expand Greenbelt improvements.

There are also a number of close-in residential neighborhoods within easy cycling distance of downtown, and there is evidence that residents use cycling on a regular basis to commute to work or access downtown amenities and events.

BICYCLE TRAVEL AND COMMUTING
Bicycles are most frequently used for commuting to work or school or to visit one of the many restaurants or bars in the downtown area. Cyclists can easily use their bike for shopping or other errands with minor modifications to allow for carrying bags or packages. Typically, when planning for cyclists, the same principles apply as for planning with other modes. Key interests for cyclists who commute include:

- Direct, fast routes are preferred, which often results in cyclists using the same busy arterials as vehicular traffic. Such routes often present safety problems for cyclists because of heavy vehicular traffic during commute hours. Improving safety for cyclists on arterials, or creating other more protected, direct routes are key issues for commuters using bicycles.
- Routes with as few stops as possible to minimize delays and the need to start and stop.
- Commute hours typically coincide with the peak for vehicular demand.
- Personal safety and security are a concern and, thus, lighting at night is important. It also results in cyclists using arterial and collector streets where they are more visible, rather than traveling on more dimly-lit local streets.
- Safe parking facilities are needed - particularly for commuters leaving their bicycles stored for long periods of time. While racks allow cyclists to secure their bike, they don't protect against vandalism or theft of parts or bicycles themselves. Weather protection is also an issue. Whenever possible, indoor secured facilities offer greater bicycle security.

Most destinations in downtown are easily reached by bicycle within 15 minutes or less. In fact, the bicycle offers a faster mode of transportation than transit when wait time is factored into the overall trip time. It may also have a competitive time advantage over the car when the time needed to secure parking and to walk from a parked car to the final destination is factored into the auto trip. The bicycle may offer the fastest mode for door to door travel time when traveling downtown.

BICYCLING CHALLENGES IN DOWNTOWN
Most of the challenges to cycling in this urban environment are man made. The main obstacles are navigating busy streets with parked cars, crossing the Boise River, or negotiating the one-way street system to reach a final destination. Cycling is also complicated by incomplete routing, lack of cycling information, and limited bicycle infrastructure in the downtown core. Thus, cyclists are often observed riding on sidewalks, sometime in order to travel down one-way streets in the opposite direction, which creates conflicts with pedestrians. These conditions beg the question, "What would happen if an integrated, well signed system of bicycle infrastructure were developed?" It is likely bicycling activity would increase and Boise could become known not only as the City of Trees but also the City of Bicycles.

RECREATIONAL CYCLING
A focus on recreational cycling is a promising strategy for promoting downtown to visitors and tourists. Cities such as Davis, CA or Portland, OR use their cycle trail network in promotional activities to draw visitors to these cities. Denver also enjoys a river and trail system traversing their downtown.

3.3 Existing Bicycle Facilities

Boise already has many of the pieces in place to support a high-quality, integrated cycling network. With a little effort and a small amount of funding, Boise will become a place where cycling is easy, convenient, attractive, and safe.

There are three types of facilities available in the study area:


Photo 3.6 Boise River


Photo 3.7 Pioneer Walkway

Photo 3.8 Courthouse Corridor

Bike Path: Provides for bicycle travel on a paved right-of-way separate from streets or highways. Vehicular activity is prohibited. These are often found in parklike or scenic settings. The Pioneer Walkway and the Boise Greenbelt are two such examples of bicycle paths. Paths are typically 10 – 12 feet wide.

Bike Lane: An on-street facility that provides a separate lane for bicycle transportation. A bicycle lane is a portion of a road or highway that is designated by striping, signing, and pavement markings to provide preferential or exclusive use of the lane by bicyclists. Bike lanes are typically 4 – 6 feet in width. In some cases, a curbside parking lane can be stripped to allow a shared parking lane and bicycle travel. This is typically done in areas where a full bicycle lane is not feasible.

Bike Route: These are streets usually designated as bike routes by signage but without pavement markings. Signage is intended to inform cyclists that this is a preferred route for bicycling, and motorists that they should exercise caution. There are situations in downtown Boise, however, where bike routes have been designated in plans but signage has yet to be posted. 5th Street is an example of a bicycle route.

RIDGE TO RIVERS TRAIL SYSTEM

The Ridge to Rivers Trail system is an extensive network of bicycle paths and trails along the Boise River and extends up into the Boise Foothills. These trails and paths offer important links from the city center to nearby parklands and open space. They also serve as a spine of corridors linking downtown to other parts of the city.

The Ridge To Rivers Trail System is an important asset for residents of Boise City and for the Treasure Valley as a whole. It has been planned, developed, and implemented as an important element of the transportation system by Ada County, Boise City, COMPASS, and the Ada County Highway District working together in close partnership. The level of involvement of each agency is an indicator of how important the Ridge to Rivers system is for the region as a whole. Boise City is primarily responsible for the ongoing maintenance and patrolling of this facility. Other cities in Ada County are also working to extend the reach of the network further across the Treasure Valley area.

BOISE RIVER GREENBELT

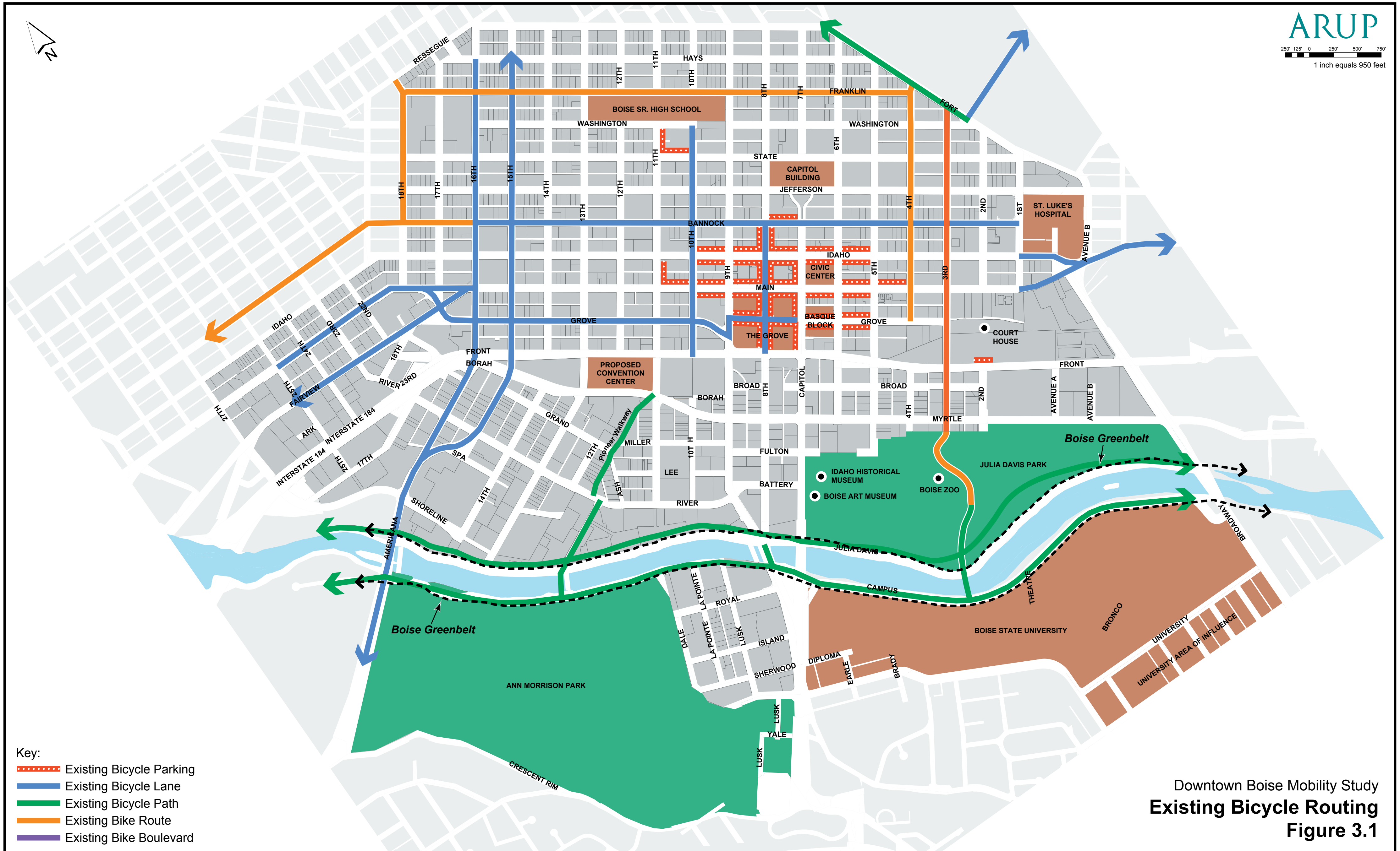
Downtown Boise is situated on the Boise River. Boise City, working in cooperation with citizens and landowners, developed the Boise Greenbelt as a thirty-mile corridor for bicycle and pedestrian travel along the River. It provides a wonderful bicycle and pedestrian experience. It is also in keeping with other Western cities such as Denver, Portland, and Seattle that are developing integrated bicycle systems that offer separate paths leading to the downtown core area. In many cases, the greenbelt straddles both sides of the Boise River and provides a protected route of travel for cyclists wanting to ride from the southeastern, southwestern or northwestern areas of Boise to downtown.

PIONEER WALKWAY

The Pioneer Walkway is a separate bicycle path connecting the downtown core to the River Street neighborhood, the Boise Greenbelt and Ann Morrison and Kathryn Albertson parks. Where it winds through the River Street neighborhood, it is difficult to find and not connected to the downtown bicycle network. Pioneer Walkway ends at 11th and Myrtle streets — both one-way streets with traffic.

15TH/16TH CORRIDOR

Fifteenth and Sixteenth Streets form a one-way couplet in the downtown area. Each offers a bike lane and in some sections, 16th offers a bike lane on both sides of the street. These facilities allow cyclists to bypass downtown and ride from the Hill Road Corridor through the North End and downtown to the Boise River, or to commute from downtown to the Central Bench neighborhood using Americana.



Downtown Boise Mobility Study
Existing Bicycle Routing
Figure 3.1

Photo 3.9 ValleyRide bus with bike rack

10TH STREET

Tenth Street is a two-way street that offers a standard bike lane on either side of the road. Tenth Street is a discontinuous street that runs from Front Street to Washington and ends between Boise High School and the YMCA. It allows for downtown circulation between the high school, YMCA, and the bike facility on Bannock Street.

BANNOCK STREET

Bannock offers the one continuous east/west connection through the downtown that includes a bike lane for much of its length. Bannock is a two way street with one travel lane in each direction and curbside parking. The street allows for cyclists to circulate within the downtown. While this facility exists, cycling activity is regularly observed on Main and Idaho as most cyclists choose to use these facilities for east/west travel. Main and Idaho provide a direct connection to Warm Springs Avenue to the east and Fairview Avenue to the west, both of which have striped bike lanes on them.

8TH STREET

Eighth Street between the BSU Campus and Main Street is a heavily-used bicycle commuter corridor that provides cyclists with a safe and convenient route for commuters traveling from the Depot Bench, Vista, and Hillcrest neighborhoods to downtown. Eighth Street is a low-volume street that lies between 9th Street and Capitol Boulevard, both of which are multi-lane, high-speed, one-way streets that receive very heavy rush hour automobile traffic. They also include dual turn lanes at key intersections that hinder through movements for cyclists, and have minimal shoulders for cyclists to use. Eighth Street is a critical alternative to these two streets. Few options exist except Broadway and Americana, which are on the outer edges of the study area. Eighth Street provides a direct connection from downtown to the Boise Greenbelt for east-west commuters and most significantly has its own pedestrian bridge over the Boise River for north-south commuters. The efficiency of Eighth Street as a commuter cycling route has been affected by construction of the Grove Plaza and the Anne Frank Human Rights Memorial, but cyclists are allowed through both facilities and there are few current conflicts.

4TH/5TH BIKE ROUTE

4th and 5th Streets offer a bike route through downtown on the eastern end. The route allows cyclists to travel north/south along the eastern edge of downtown. Streets have low traffic volumes, are tree lined for weather protection, and offer an attractive riding environment. Eliminating stop signs at certain locations could help improve the flow of cycle traffic.

VALLEYRIDE

ValleyRide buses are equipped with two bicycle racks per vehicle to allow cyclists to use public transit to reach destinations outside of downtown. The racks are mounted on the front of the vehicle and can be deployed whenever a passenger boards a vehicle. Customers are responsible for placing their bicycles on the rack itself. There is no additional charge for using the rack. Bicycle racks on buses are important features providing greater regional mobility for people who primarily use their bicycle for transportation. They also benefit transit customers who live, work, shop, or go to school near a transit stop but are far enough from the stop that a walk would take too much time. The bicycle helps make either end of the transit trip occur more quickly.

The ValleyRide transit network functions as an extension of the downtown bicycle transportation system. Conversely, bicycles help extend the reach of the public transit system. Together, these two modes leverage the beneficial attributes of each and form an ideal partnership between two modes of transportation. For a description of the routes serving downtown please refer to the Transportation System Evaluation — Transit Chapter.

BICYCLE PARKING

Downtown Boise has an extensive network of bicycle racks in the downtown area. They are strategically located near businesses that generate a significant amount of bicycle travel. Bicycle parking is most available along the 8th Street corridor, though it is still insufficient during the busiest times of day. At lunch and in the early evening, these racks are full to overflowing, causing cyclists to lock their bicycles to trees, fences, and parking meters. Few off-street, public bicycle parking facilities offer security or weather protection.

BICYCLE SIGNAGE

Very little signage exists for cyclists in the downtown area. There are occasional route markers along the bike routes but little else.

BICYCLE SHOPS

Downtown Boise has a number of bicycle shops that provide information about cycling paths and trails, provide repairs, and information about the latest cycling events and activities. Bicycle shops are an important feature of downtown and are typically the most important place for reaching the cycling public.

3.4 Deficiencies in the Existing Network

The downtown bicycle network and support facilities should be expanded. Current facilities should also be upgraded to support bicycles as a viable transportation option in downtown. Some of the main deficiencies include:

Maintenance: Maintenance of paths and trails is needed to ensure smooth and safe riding.

Limited network of routes and parking facilities: There is a limited network of bicycle routes and lanes in downtown, and they are often not present in areas where there is significant bicycle demand. For example, on-sidewalk riding is regularly observed on Capitol, 9th, Main, and Idaho. Like other travelers, cyclists prefer to use these streets because they provide direct and convenient access to and through downtown. All of these streets, however, are one-way and cyclists traveling against traffic often resort to riding on sidewalks. There is also a lack of bicycle parking facilities in areas of high demand.

Connectivity: Connectivity is poor through the downtown. Rather than having a disjointed system, the downtown network should be modified to form a larger whole.

Links to the regional system: The regional systems of routes and facilities allow cyclists to bypass downtown. There are no strong connections or corridors of travel from the regional bicycle network into the downtown core.

Signage: A system of signs is needed to direct travelers to major destinations and points of interest. Signs are also necessary to alert both cyclists and drivers to the presence of bike routes or lanes on the road.

Locker/shower facilities: For developments and employers of a certain size, lockers and shower facilities should be provided as a part of the planning approval process.

3.5 Addressing Deficiencies and Expanding the Current System

Boise already has a good foundation for cycling. Much can be done to improve conditions for cycling with modest effort on the part of City and agency staff. Enhancements to the existing system are noted below, followed by recommendations for expansion. Some of the deficiencies identified in this element require ongoing, although minimal, attention and focus from

Photo 3.10 Berkeley, CA Bike Boulevard Sign

Photo 3.10 Directional Signage


Photo 3.12 Bridge across the Boise River


Photo 3.13 Bike path in Ann Morrison Park


Photo 3.14 Plaza on the Grove

those responsible for local bicycle facilities.

BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE

Ongoing monitoring of the system and identification of emerging needs (such as new parking facilities, traffic enforcement, etc.) is important. The best way to accomplish this is to establish a Bicycle and Pedestrian Advisory Committee that can inform Boise City about the needs of the cycling community. This group can meet once a quarter or once a year. The BPAC could meet monthly when there are pressing needs.

MAINTENANCE

An ongoing maintenance program is needed to ensure that paths and trails are in good condition. An annual review of paths and trails along with a system for reporting and addressing maintenance needs will accomplish this.

SIGNAGE

Many cities employ a signage program to direct cyclists to points of interest or to other facilities. Rather than simply identifying a route number or name, effective signage programs provide information about where destinations or facilities are and, in some cases, also provide mileage information. These types of sign programs can also be used to support visitor and tourist activity by making bicycling one of the activities visitors participate in when in downtown. There are a few key areas of focus for the signage program:

Downtown Core and Cultural District: Boise City is the capital of Idaho, and the economic, cultural, and tourism hub of Southwest Idaho. As a result, Boise attracts many visitors who may be unfamiliar with the various destinations within downtown and the dining, shopping, recreational, and cultural amenities available to them. Many of these destinations can be reached by bicycle and in fact, bicycle routes between sightseeing destinations could be promoted as part of expanding tourism. A wayfinding system geared to cyclists who are visiting Boise is needed.

Boise Greenbelt: Maps and crossing information are needed on the Greenbelt to allow cyclists to make informed decisions about which crossing facility to use when riding through this corridor. They will also let cyclists know when to access a local facility such as 8th Street or when to cross over the park system.

Bicycle Boulevards: Bicycle boulevards require additional signage to let people know they are traveling on a special facility. Directional signage helps cyclists travel through the corridor and other signage directed at motorists informs them that special priority is for cycling on this street. On-street stencils and bicycle boulevard signs also serve a traffic calming function which is of benefit to local residents.

BIKE PARKING ORDINANCE

For developments or employers over a certain size, providing indoor bicycle parking and storage will provide an important mechanism for expanding the ability to support alternative transportation. Larger buildings can provide a storage room for cyclists and indoor shower and locker facilities so those that choose to ride can safely store their bicycle and clean up for work. Some cities like Palo Alto, CA require new developments to include bicycle parking, lockers and showers. Thus, these facilities become incorporated into the urban fabric and make the decision to cycle an easier one.

NEW LINKS IN THE EXISTING SYSTEM

The existing system should be expanded to allow for greater cycling activity downtown. Stronger connections from the Near North End and North End, East End, the River Street-Myrtle Street District, Boise State University and Central Bench into the downtown core will help encourage cycling and provide a downtown circulation mode.

To identify preferred routes and corridors, streets were evaluated based on the following criteria:

- Connects outlying areas with downtown
- Links residential areas to other parts of the city
- Provides local circulation
- Links to schools
- Closes a gap in the existing system

Based on these factors, new corridors for bicycle facilities were identified. The type of facility recommended was based on the anticipated needs of the cycling community, the available roadspace on a local street, the observed demand, and the facility's adherence to the critieria listed above.

MAIN/IDAHO

Main and Idaho are a one-way couplet with regular bicycle activity observed along the corridor. Many cyclists use these streets to travel through downtown or to reach destinations along 8th Street or in the Central Business District. Either the provision of a wide curb lane or an on-street bicycle lane is warranted. While Bannock already offers a two-way bicycle facility, based on field observations and feedback from study participants, offering a facility on these two streets is necessary.

11TH STREET

A continuous bicycle facility is needed from the Pioneer Walkway to the Near North End. Currently, the Pioneer Walkway ends at 11th and Front Streets and there is no contiguous facility or information to direct northbound cyclists or walkers to cross over via Grove to 10th to take advantage of those bicycle facilities. By making 11th Street a bidirectional bicycle facility and removing one travel lane, the street would allow for through movement of bicycles, connect two residential centers with the central area of downtown, and provide continuous connections to the regional system along the Boise Greenbelt. Currently, the 10th Street facility is limited in its usefulness as it does not cross the Connector and does not connect to other regional or area-wide systems.

BIKE BOULEVARD SYSTEM

A Bicycle Boulevard, sometimes called a bicycle priority street, is a street where all types of vehicles (including cars) are allowed, but the roadway is modified as needed to enhance bicycle safety and convenience. Typically these modifications will also calm traffic and improve pedestrian safety. Streets are painted with special markings and stop signs are removed for through travel, while cross streets retain their stop signs, allowing for greater cycling ease. Also, different street signs and pavement markings inform motorists and cyclists that they are traveling on a shared facility, on which the bicycle has priority. Bicycle boulevards typically parallel busy arterial streets and offer a safer and more attractive option for cyclists. They also serve as a traffic calming technique, enhancing the livability of streets for local residents. Fifteenth Street from Fort Street to Shoreline is an example of an existing street which functions as a bike boulevard.

Suggested applications in the downtown core include:

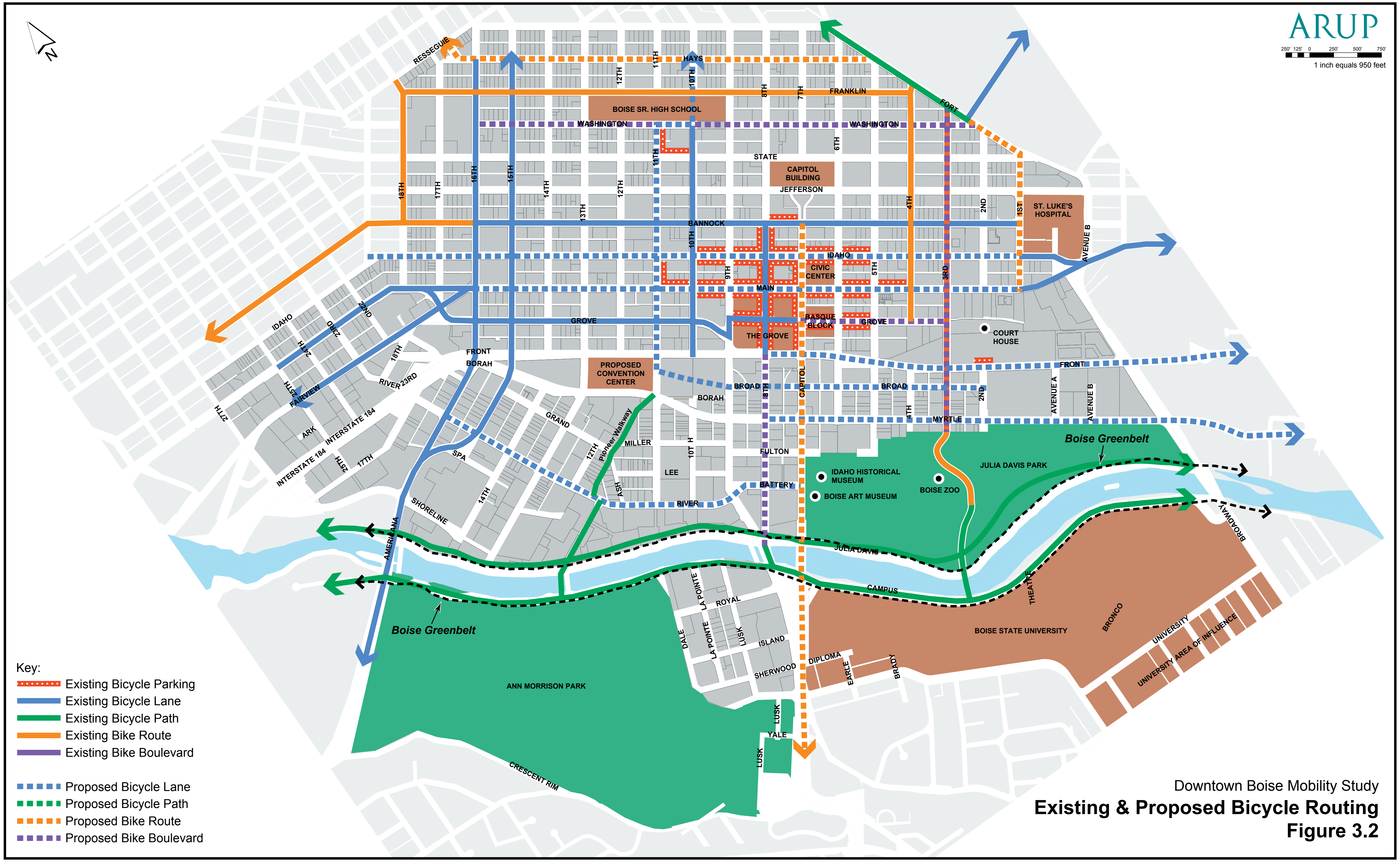
- 3rd Street
- 8th Street
- Washington Avenue
- Grove Street from Capitol to Third

6. Conclusions and Moving Forward

Overall, downtown Boise has great potential for becoming a bicycle-friendly environment. Boise has the right blend of topography, climate, land use, high tech employees, and students for becoming a noteworthy place for cycling. Other cities such as Boulder, CO, Cambridge, MA, or Santa Barbara, CA, are all well known for offering a high quality bicycling environment. Boise could become a similar place if only

Photo 3.15 Bike Boulevard Stencil

Photo 3.16 Rail with trail in El Cerrito, CA



Downtown Boise Mobility Study

Existing & Proposed Bicycle Routing

Figure 3.2

a few small steps are taken. The existing network needs some enhancements and expansion. Establishing a forum for communication with the bicycling community may also help ongoing maintenance and planning needs. Key findings from this report include:

- Where available, Boise offers high quality cycling facilities and environments. The Boise Greenbelt and the 15th/16th Street corridors are two such examples.
- Most destinations in downtown are quickly and easily reached by bicycle. Bicycling can offer a faster and more convenient form of mobility in the downtown area when compared to driving or transit.
- A regular maintenance review of bicycle paths and trails is needed to ensure that trails are well maintained and clear of obstacles or debris.
- Some system expansion is needed to provide direct and convenient routing to and through downtown
- Realigning some routes is necessary to maintain connectivity
- Establishing a system of bicycle boulevards will provide links through the downtown core, offer alternatives to busy arterials, and provide some traffic calming on more residential streets
- Establishing a Bicycle and Pedestrian Advisory Committee will help the city plan for the needs of the cycling community and identify priority projects when appropriate
- A bicycle signage system is needed, particularly in the downtown core and Cultural District and along the Greenbelt, to help people locate destinations of interest such as the State Capitol Building, historical districts, parks, museums, theaters, and dining and shopping areas, and to find and use the Greenbelt and the bridges across the Boise River.

The creation of a safe and interconnected bikeway network is essential to allow people to safety bicycle throughout downtown Boise. The goal is to create a network of bike routes that provides an integrated system downtown and effectively serves existing and new development. The recommended system is not intended to accommodate every bicycle trip in the downtown area. It is intended to create a network of facilities that serve the most needs of the most users in the area. It is also intended to create a process whereby system users and system planners can have regular dialogue about maintaining this system over time. In so doing, people in the downtown will have viable options for transportation now and in the future.

4. Pedestrian

Every journey begins and ends with a walking trip. Making all downtown streets more accessible, comfortable and safe for walking is crucial to maintaining a vibrant city center where the street becomes a place of interest and focus for the community. This is particularly important in realizing the vision of a mixed use, vibrant city center with adjacent neighborhoods that are active day and night. All of the plans for downtown Boise and adjacent neighborhoods envision streets full of people walking, shopping, and playing - living streets brimming with activity.

Great streets are intentionally designed and allow for different users to co-exist in an inspired and effective way. Some of the most memorable streets in the world are very busy thoroughfares with high volumes of traffic and transit in addition to walkers, street oriented retail, and high intensity development. Sometimes these streets experience high levels of congestion indicative of the desire for people to be there. They are attractive downtown destinations in themselves. These streets are memorable because planners, designers and developers work carefully to create a street context that gracefully supports multiple forms of transportation. Downtown environments call for extra care and attention when designing street systems to ensure they perform their intended function - transportation - while at the same time supporting the multiple other demands on the system in the downtown area such as shopping, dinning, working, and living.

This element of the Downtown Boise Mobility Study evaluates the current pedestrian system and its enhancement to increase access to, and circulation in, downtown. This element also supports many of the overall DBMS goals and gives particular attention to:

Goal 2: Maximize transportation system efficiency and develop a downtown transportation system that includes and integrates a variety of travel modes, and promotes the use of alternatives to the automobile.

Goal 3: Link sub-districts, activity centers and the parking supply in downtown Boise through a well-designed, functional transportation system.

Goal 4: Identify how to enhance the performance of the downtown street system and improve mobility while at the same time make the system compatible with a people-oriented, urban-intensity downtown.

This chapter is organized into the following sections:

4.1 Key Findings
4.2 Downtown Walking Conditions
4.3 Existing Pedestrian Facilities in the Core Area
4.4 Existing Pedestrian Facilities in the Periphery
4.5 Deficiencies in the Existing Pedestrian Network
4.6 Addressing Deficiencies and Expanding the System
4.7 Conclusions and Moving Forward

"Great streets do not just happen. Overwhelmingly, the best streets derive from a conscious act of conception and creation of the street as a whole."

- Allan Jacobs

Photo 4.1 Main Street

Photo 4.2 8th Street between Main and Idaho


ARUP
1 inch equals 950 feet
Near North End
Central Business District / Old Boise
Westside Downtown
Eastside / St. Luke's
Fairview Strip
CBD Expansion Convention Centre
Courthouse Corridor
Cultural District / 8th Street Market
River Street Neighborhood
Myrtle Street Neighborhood
Boise State University
Ann Morrison Park
Boise Greenbelt
Boise Greenbelt
CAPITOL BUILDING
ST. LUKE'S HOSPITAL
CIVIC CENTER
BASQUE BLOCK
THE GROVE
COURT HOUSE
IDAHO HISTORICAL MUSEUM
BOISE ART MUSEUM
BOISE ZOO
JULIA DAVIS PARK
Key:
Study Area Boundary
Sub-District Boundaries
Downtown Boise Mobility Study
Study Area
Figure 4.1

4.1 Key Findings

The findings from this assessment reveal:

- The downtown planning framework effectively creates several pedestrian facilities in the downtown.
- Strategic plans identify an adequate supply of pedestrian facilities to accommodate new growth.
- Urban design guidelines requiring street oriented retail and lot line development in the downtown core retain a high quality pedestrian environment.
- Effects of design guidelines in the River/Myrtle area are having a positive impact as evidenced by the Courthouse project with the introduction of landscaping and pedestrian-oriented features along Front Street.
- The pedestrian network is not integrated into a seamless system. Links across busy streets are inadequate for both existing and new facilities.
- Higher quality pedestrian crossings are needed throughout the downtown.
- Establishing a pedestrian district along with a network of pedestrian corridors will maintain the walkability of downtown in the years to come.
- Envisioning boulevard applications to Front, Myrtle, Capitol, and State will transform these streets into inviting pedestrian and urban environments while retaining their primary function of providing automobile access to and through the downtown area.
- New crossings are needed along Grove, 8th, Front and Myrtle Streets to support pedestrian circulation and mobility.
- A system of informational signs informing pedestrian travelers of where they are and nearby destinations is needed.
- Establishing a Bicycle and Pedestrian Advisory Committee will help city and agency staff implement recommendations

Photo 4.3 St Lukes Regional Medical Center

Photo 4.4 ???

Photo 4.5 The Fairview Strip

Photo 4.6 ???


Photo 4.7 8th Street in the cultural district


Photo 4.8 Urban deisgn elements Capital Terrace Parking Garage


Photo 4.9 8th Street between Idaho & Main

from this report and identify needs as they emerge.

These findings will help guide the development of the 2030 Transportation System Plan.

4.2 Downtown Walking Conditions

The Downtown Boise Mobility Study covers a broad area with many different forms of development rather than one form that is typical throughout the study area. The Central Business District is the most intense area of development in the city with large office developments, shopping, mixed uses, and pedestrian orientation. Old Boise, Eastside, and the Near North End all have older styles of development with inviting pedestrian environments, as does the Cultural District which extends south along 8th Street from the Central Business District to the Boise River. The Boise River Greenbelt connects downtown with other parts of the city through a high quality, scenic, thirty-mile pathway along the river. The River Street and Myrtle Street sub-districts have remnant residential neighborhoods with attractive, tree-lined streets; however, warehouse, office and institutional development has intruded and created a more auto-oriented, sometimes suburban feel to these areas. Downtown Boise is bisected by Front and Myrtle, both five-lane, one-way streets running east and west. These arterials impact considerably the walking environment and impose challenges in creating an interconnected system of pedestrian routes. West of the immediate downtown, more recent auto-oriented development patterns are reflected in the design of the street network of the Fairview Strip. Given these differences, for this plan element, the Downtown Boise Mobility Study (DBMS) area has been divided into the Core Area, the Periphery, and the Fairview Strip, as the different development types and supporting street networks are fairly similar within each broad category. Figure 1 illustrates these sub-areas and their relationship to existing neighborhoods and districts.

CORE AREA

Neighborhoods: Central Business District/Old Boise, Eastside, Westside Downtown to 13th, and the Cultural District.

Downtown Boise is already a pedestrian friendly place, as characterized by its short blocks, building density, mix of uses, and street-oriented buildings. This is partly a result of history and partly a result of public policy initiatives. The grid was established when Boise's transportation network was centered on wagons, trolley lines, and foot. Utilitarian, shorter distance trips (shopping, school, church) were made by foot while long distance travel was accommodated by rail or trolley. Street networks were designed to allow for easy access. Circulation by walking played a central role in transportation. In addition to a fine-grained street network, development patterns generally provided mixed uses within a neighborhood so people could easily conduct their daily business by walking. This pattern is easily seen when looking at Old Boise or the downtown core - blocks are short, buildings are close together, and buildings are oriented to the street. The shortest blocks on the grid are in the oldest portions of the city.

PERIPHERY

Neighborhoods: Westside Downtown (13th – 18th), River Street Neighborhood, Myrtle Street Neighborhood, Courthouse Corridor, Boise State University, and the Near North End.

As a traveler moves out from the city center, the blocks become longer as evidenced in the River/Myrtle area. Longer blocks allow for larger building footprints with surface parking typically located in front of a building. Streets also become wider as more travel lanes are dedicated to automobile movements, which means more street space is required for mobility.

THE FAIRVIEW STRIP

Along the Fairview Strip, different design standards and approaches to building development provide a good point of comparison with the Central Business District or the Periphery. Land use is dominated by large lots occupied by auto-oriented businesses and surface parking lots. The wide streets take longer to cross when walking. Deep building setbacks create even longer walks for pedestrians in these neighborhoods. Signalized crossing locations are few and pedestrian infrastructure is limited. The pedestrian environment is also less inviting with sidewalks confined between fast-moving arterial street lanes and adjacent parking lots. There is little lot line development, minimal landscaping, and little to see other than parked cars between the sidewalk and adjacent buildings.

The Fairview Strip is the best example of a near-downtown built environment centered on vehicular access and mobility with little attention given to other modes.

CORE AREA PEDESTRIAN CHARACTERISTICS

The core area exemplifies an ideal pedestrian environment. The 1993 Downtown Plan successfully maintained and enhanced some key pedestrian features in the downtown. Some of the many characteristics of the pedestrian environment in the Core Area include:

Historic grid pattern: The historic character of the city reinforces pedestrian activity. Historic street patterns form a grid with short blocks allowing people to circulate easily within the downtown core.

High quality pedestrian environment: Sidewalk designs, street furniture, pedestrian oriented historic lighting, and other features create a welcoming pedestrian environment. This is particularly true along 8th street throughout the downtown area.

Building frontages: Buildings are built to the sidewalk line, are well maintained, and usually have retail or other people-oriented uses on the first floor which provide interesting environments for people to walk. Storefronts and cafes intermix with the pedestrian environment creating a fine grained and interesting context for walking. Building frontages adjacent to the sidewalk allow for a sense of "eyes are on the street" so people feel they can walk safely in downtown.

Climate: During the spring, summer and fall, the climate is conducive to walking, as there is an absence of extreme weather conditions such as thunderstorms, extreme heat, or extreme cold. Midwinter temperatures and periodic snow can impact the walking environment but Boise's generally mild winters are seldom inclement enough to discourage pedestrians.

Geography: There are no major impediments to circulation by foot in the downtown area. It is relatively flat with no geographic barriers to pedestrian circulation. The Front/Myrtle Couplet and Capitol Boulevard south of Front, however, function as man-made barriers. These are wide streets with high volumes of traffic and minimal pedestrian facilities.

Integrated with other systems: The Greenbelt can be reached easily from downtown along the 8th Street corridor, via Americana, or via Broadway or the pedestrian paths through the Julia Davis Park. The transit system also converges in the downtown along Main and Idaho allowing for easy connections to transit.

Downtown Transit Mall: The transit mall is an important feature in downtown Boise. It provides an attractive and convenient transfer facility in the core of downtown. Passenger waiting areas have shelters and seating nearby allows people to wait in comfort for the transit service. Because Boise is a flag stop system – you hail the bus as you would a cab – pedestrians may hail a bus anywhere along the route. Transit is within an easy walk of most destinations downtown. Finally, the transit mall activity ensures there are people in and around downtown after businesses close keeping activity on the street network and adding to a feeling of safety.

All of these characteristics contribute to the vitality of the pedestrian environment in downtown. The compact size of downtown also supports its walkability.


Photo 4.10 Plaza on the Grove

Photo 4.11 Main and Capitol

Downtown Boise Mobility Study

Pedestrian Walktime Isochrone

Figure 4.2

PERIPHERY PEDESTRIAN CHARACTERISTICS

The areas surrounding the downtown core are less pedestrian oriented. The Near North End still offers an attractive walking environment but the Courthouse Corridor, River Street Area, Fairview Strip, and portions of the River Street and Myrtle Street neighborhoods all are less pedestrian oriented than the core area. Characteristics supporting a walking environment are more limited in these neighborhoods. Nonetheless, some elements support walking including:

Historic Grid: Some areas of the periphery, particularly the Near North End and the River and Myrtle Street neighborhoods, have a historic grid pattern supporting pedestrian circulation.

Linkages to the Boise Greenbelt: The Boise River functions as a geographic barrier to north/south travel. However, the Greenbelt offers an inviting transportation corridor to the east and west. Some crossings are provided over the river.

Climate: During the spring, summer and fall, the climate is conducive to walking, as there is an absence of extreme weather conditions such as thunderstorms, extreme heat, or extreme cold. Midwinter temperatures and periodic snow can impact the walking environment but Boise's generally mild winters are seldom inclement enough to discourage pedestrians.

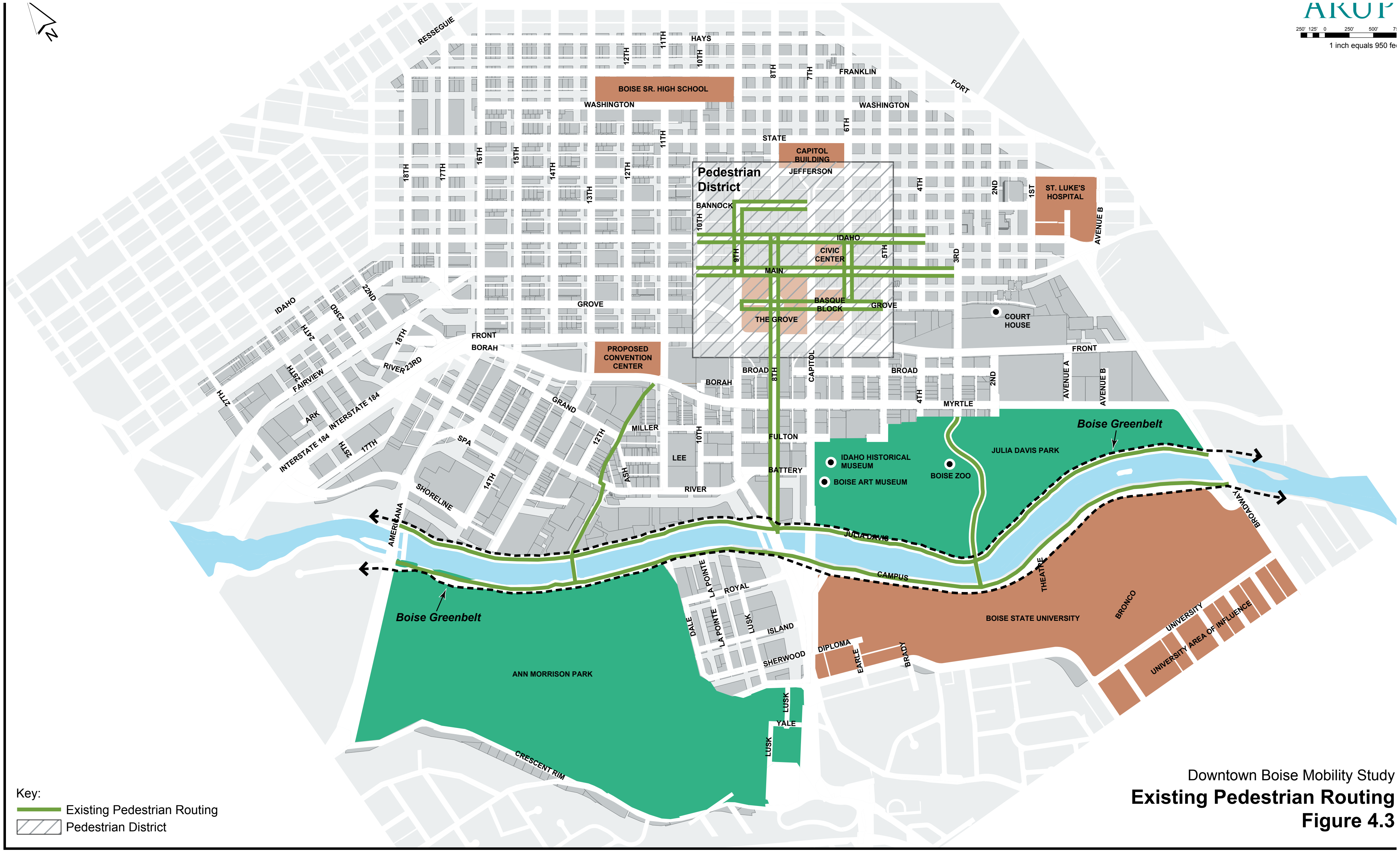
Pioneer Walkway: Pioneer Walkway is a relatively unknown but important link in the pedestrian network connecting the downtown area and Boise Greenbelt, through the River Street Neighborhood.

THE FAIRVIEW STRIP

Characteristics supporting a walking environment are most limited in this area. While the area offers sidewalks for walking, it is sorely lacking in features to support a vibrant pedestrian environment. Buildings are set back with parking lots separating sidewalks from buildings. Pedestrian amenities such as landscaped buffers or high-quality crossings or environments are almost non-existent.

WALKING TRAVEL TIMES IN THE DOWNTOWN

The street grid of downtown Boise is well suited to walking for daily trip needs. The walking isochrone map, Figure 2, demonstrates how easily people can use their feet to reach most destinations within the downtown. The darkest color red indicates areas of downtown that can be reached within a five-minute walk from the core of the study area. The core of the study area was identified as the intersection of 8th Street Pedestrian Promenade with Main Street. The entire Central Business District can be reached within a 5- minute walk of this location. A ten-minute walk allows access to most of the downtown core including the Central Business District, Old Boise, the Cultural District, and some portions of Westside, Eastside and Near North End. The longest walks (20 – 30 minutes) from this location are to Boise State University, Courthouse Corridor, St. Luke's Medical Center, Ann Morrison Park, and Fairview Strip areas.



Downtown Boise Mobility Study
Existing Pedestrian Routing
Figure 4.3

4.3 Existing Pedestrian Facilities in the Core Area

EIGHTH STREET PEDESTRIAN PROMENADE

Eighth Street is an identified pedestrian street in the Downtown Plan. It is the primary north/south spine of the pedestrian system and extends 11 blocks from State Street to the Boise River. Between Main and Front streets, 8th Street has been closed to traffic as part of development of the Grove plaza. This plaza occupies four city blocks between Main, Front, 9th streets and Capitol Boulevard. The design elements on the closed portion of the street create a tree-lined walkway inviting to pedestrians and protected from the negative impacts from automobile traffic. North of Main and south of Front, 8th Street is open to automobile traffic, but, again, traffic calming elements make it an inviting street for pedestrians and non-motorized travelers.

Within the Cultural District, 8th Street is an important north/south axis connecting a multitude of art institutions to one another and to the downtown core. The many cultural institutions in this district, and shops and restaurants along 8th Street, create an inviting pedestrian link to the Anne Frank Memorial, Boise Greenbelt and to Boise State University across the Boise River.

GROVE PLAZA

Grove Street is closed to traffic from 9th Street to Capitol Boulevard and is now a part of the Grove Plaza. The closure of both 8th Street and Grove Street at this location creates an ideal setting for downtown activities such as Alive after Five where people gather to hear music, see friends, and relax while enjoying being in downtown.

MAIN/IDAHO STREETS

Main and Idaho form a one-way couplet and are identified in the 1993 downtown plan as pedestrian streets. These are important East/West links throughout the business district and provide the primary connection between the Old Boise/Eastside, downtown, and Westside. Wider sidewalks, storefronts lining sidewalks, street furniture, shade trees, and specialty shops characterize these streets, which intersect with 8th Street and create an inviting pedestrian network. The ValleyRide transit center is located along these streets assuring fast and convenient transfers for ValleyRide passengers using the regional bus system. The transit mall links the pedestrian, cyclist and transit network.

GROVE STREET

Grove Street between Capitol Boulevard and 9th Street was vacated and incorporated into the Grove Street Plaza in 1986. The Basque Block has been developed on Grove Street just east of the Grove Plaza across Capitol Boulevard. This block has significant improvements—special paving, street trees, benches, and artwork—that enrich the pedestrian environment. The block has several restaurants with outdoor dining areas and serves as a plaza when the street is closed to traffic during special events. The block provides a connection between the Grove Plaza and Grove Street, which continues to the east as a neighborhood street.

Photo 4.12 Sidewalks on Capitol

Photo 4.13 ???

Photo 4.14 Sidewalks on the Connecter

Photo 4.15 Crossing Capitol at Grove

Photo 4.16 Greenbelt pavement condituon by BSU

Photo 4.17 Crosswalk at Eigth & Front

4.4 Key Pedestrian Facilities in the Periphery

Planning documents for peripheral areas such as the Westside Framework Master Plan and the River Street - Myrtle Street Urban Design Plan call for a network of pedestrian oriented streets in these areas. In general, these streets have yet to be improved with pedestrian amenities to the level found in the downtown core. Some of the streets have tree lawns and street trees in place. Where new development has occurred, such as the River Plaza Apartments and Offices and the Shoreline Plaza Apartments, the buildings have been placed at the sidewalk line and attractive streetscapes have been installed.

GREENBELT

The Boise Greenbelt is 30-mile non-motorized facility providing access to and within the study area. A traditional bicycle/pedestrian trail, it follows the Boise River and provides a lush and inviting corridor for walking, running, bicycling and other alternative modes of transportation. It provides an important East/West connection across the study area with bridges offering access across the river.

PIONEER WALKWAY

This relatively unknown bicycle and pedestrian path offers a link through the River Street neighborhood from the Boise River to the downtown. The path travels through both housing and office parks. It appears to be relatively unknown except to those who live and work along the path.

COURTHOUSE CORRIDOR PEDESTRIAN PROMENADE

The master plan for the Courthouse Corridor includes a pedestrian spine running from the Ada County Courthouse to the Idaho Water Center at Broadway and Front, which includes brick paving, trees, landscaping and seating. The spine provides an alternative route for pedestrians to walking along Front Street, which is heavily dominated by vehicle traffic. It also will provide connections to the Hospital District and to Julia Davis Park. Housing development in the corridor has been built so the fronts of these buildings are pulled up to the spine, and building entrances face the spine.

While other streets also perform important pedestrian functions, they are not identified in the 1993 Downtown Plan. The Westside Framework Mater Plan identifies Main and Idaho as important pedestrian streets, along with 11th and 14th streets. The River/Myrtle Urban Design Plan identifies Broad, 8th, 11th, 13th, 3rd and Grove streets as important pedestrian streets. The DBMS will define an expanded pedestrian network throughout the downtown core as a part of the Vision 2030 Transportation System Plan.

PLANNED ENHANCEMENTS TO THE PEDESTRIAN NETWORK

Two planning documents offer important guidance on the expansion of the pedestrian system. Both the Westside Framework Master Plan and the River Street/Myrtle Street Urban Design Plan call for an expansion of the pedestrian system to respond to new development in the downtown area. The key system expansion elements include:

CORE AREA

11th Street: Eleventh Street from State to Grove is identified as a special downtown pedestrian street with enhanced pedestrian amenities and design guidelines.

PERIPHERY

14th Street: The Westside Framework Master Plan calls for the possible closure of 14th Street between Idaho and Main to create an urban park/plaza space. The plan also calls for the creation of a special promenade along this corridor from Grove to Bannock.

Broad Street: Broad Street will provide an important pedestrian link in the Myrtle Street area. This will provide an east-connection from 11th Street and the proposed convention center to Avenue B close to Broadway Avenue. It also intersects with the 8th Street corridor which then links to the downtown core and the Boise River.

4.5 Deficiencies in the Existing Pedestrian Network

A pedestrian audit was conducted of the downtown study area – along both the existing and proposed pedestrian network. This audit was intended to inform the development of the transportation system plan. The audit also evaluated the current pedestrian system. Boise City staff, ValleyRide staff, and Arup staff completed the audit. Findings from the audit forms are incorporated into the analysis below. For new links in the pedestrian network, the audit forms will be used to develop the Capital Improvement Program. Deficiencies are discussed in general terms rather than addressed at a specific intersection level.

CORE AREA

There are few physical impediments to walking in the downtown area. Downtown is a place of high pedestrian activity as evidenced by the numbers of people out on the streets at lunch, running errands during the day, and shopping on weekends. There is also significant pedestrian activity in the evenings in certain sections of downtown, noteably in Old Boise, the downtown core, and the cultural district where restaurants and entertainment venues are located. Special events such as First Thursdays, the summertime Alive after Five, and Saturday Farmer's Market generate dense pedestrian activity. A non-scientific, informal survey completed for the Downtown Boise Mobility Study revealed that 91% of those surveyed walked within the downtown area once they arrived. The fact people walk in the downtown core is a result of development styles and patterns along with the fine-grained street network. The downtown is rich with pedestrian amenities and high quality pedestrian facilities. However there are impediments for walking in the downtown core including:

System connectivity: While Grove Street is identified as a primary pedestrian corridor and connects the Basque Block to the Grove Plaza, there are no links between this corridor across Capitol or 9th. This lack of connection forces pedestrians using the identified pedestrian network to either detour to a protected crossing or jaywalk when traffic is not present. Jaywalking appears to be the preferred approach.

Sufficient crossing times: Some signals at major street crossings such as 8th and Front or Capitol and Front allow for 5 seconds of green time before the red hand begins to flash. Thirty seconds in total is allowed for crossing this street, which is just enough time for the most able, bodied pedestrian to cross.

Crossing facilities: A different crosswalk design should be applied at intersections where there are both high volumes of pedestrians and high volumes of traffic. A higher-level design will clearly demark pedestrian space and alert drivers to the presence of pedestrians.

Consistent ADA facilities: Curb ramps vary dramatically throughout the core area and the study area as a whole. An ADA audit should be completed and consistent ramps and facilities provided.

Signage/Information: Street signs are placed exclusively for automobile drivers. On most one-way streets, the street signs are only facing the flow of traffic. Thus, pedestrians not familiar with the area must walk past the traffic light in order to know the name of the street they are approaching if they are walking against the flow of traffic.

PERIPHERY

Some parts of the downtown area are vibrant pedestrian environments while other areas are sorely in need of improvements. Most of the barriers to expanding pedestrian access and mobility are man made rather than geographic or climate related. The Peripheral Area has much greater need for enhancing the pedestrian environment. The deficiencies include:

Lack of adequate crossings: Protected pedestrian crossings in the periphery are critical to ensure strong connections between the core area, other areas of downtown, and adjacent neighborhoods. Crossings across the Connector and other busy

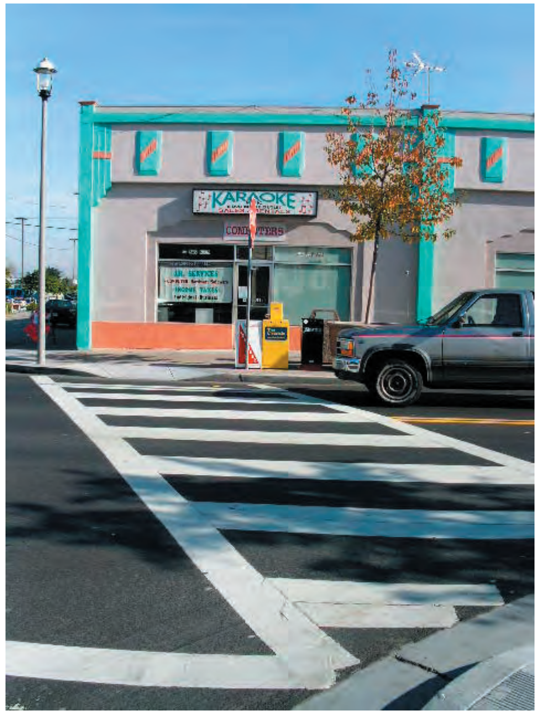


Photo 4.18 Possible Crosswalk treatment in San Carlos, CA

streets such as Americana or Fairview are either lacking or inadequate.

High Volumes of Traffic: Traffic volumes detract from a comfortable pedestrian environment. High traffic volumes can be mitigated through design elements that place buffers between walkers and the traffic.

Protected pedestrian crossings at key locations: Links within the pedestrian network are missing at crucial locations where pedestrian streets intersect with auto-dominated streets such as Capitol or 9th. In other areas such as along Myrtle Street to the East of 5th, there are no signalized intersections or protected pedestrian crossings forcing people to cross between car platoons when the signal cycles from green to red at 5th. More crossings should be added to this area to facilitate north/south pedestrian movements between Old Boise/Eastside, Julia Davis Park, and Boise State University.

Old and Decaying Sidewalks: Old sidewalk design standards placed the sidewalks immediately adjacent to automobile traffic as is the case for the Front/Myrtle couplet and Capital Boulevard. These and other facilities should be improved to provide a safer and more attractive walking environment. Sidewalk decay and interruptions in the sidewalk network due to tree roots and general decay were observed particularly in the River and Myrtle Street neighborhoods and some areas of the Near North End.

Lack of maintenance and upkeep of pathways: Both the Greenbelt and Pioneer Walklay evidence decay and a need for upkeep and repairs.

Signage/Information: Lack of knowledge or understanding of how to use a street system could function as a barrier. Infrequent visitors to downtown may be reluctant or uncomfortable to walk beyond the immediate vicinity of where they are because they don't know where they are going or what lies beyond the Grove Plaza, the Capitol Mall, etc. The downtown information system assumes a high level of knowledge about the downtown area. Because downtown Boise is a center of regional and statewide importance, it draws people everyday who are not familiar with the downtown.

THE FAIRVIEW STRIP

The Fairview Strip was designed to maximize the convenience of driving and vehicular mobility. New design standards for development along with an areawide study are required to develop a systematic approach to enhancing the pedestrian network and environment in the downtown area.

4.6 Addressing Deficiencies and Expanding the System

While the downtown core is a vibrant pedestrian environment, much work could be done to enhance the comfort, safety, and attractiveness of the walking environment in the downtown and surrounding areas. Deficiencies can be grouped into the following categories:

Connectivity: Linking all elements of the current pedestrian network and eliminate barriers on the current system. Priority should be placed on projects linking the existing network together.

- Crossings
- ADA compliant curb ramps
- Crossing times
- Signage

Enhancements: The current system could be enhanced to improve the safety and quality of the pedestrian environment. Enhancing the current system should be a secondary focus.

- Sidewalk widening or redesign
- Buffering between sidewalks and the curb on heavily traveled streets
- Landscaping
- Lighting
- Weather protection

Extensions: The pedestrian network should be extended to link the Central Business District to other parts of downtown and to extend pedestrian infrastructure to areas of new development. Extending the system should occur in tandem with growth and development over time.

- Extending pedestrian corridors
- Expanding pedestrian facilities
- Adding new links across Boise River

CONNECTIVITY

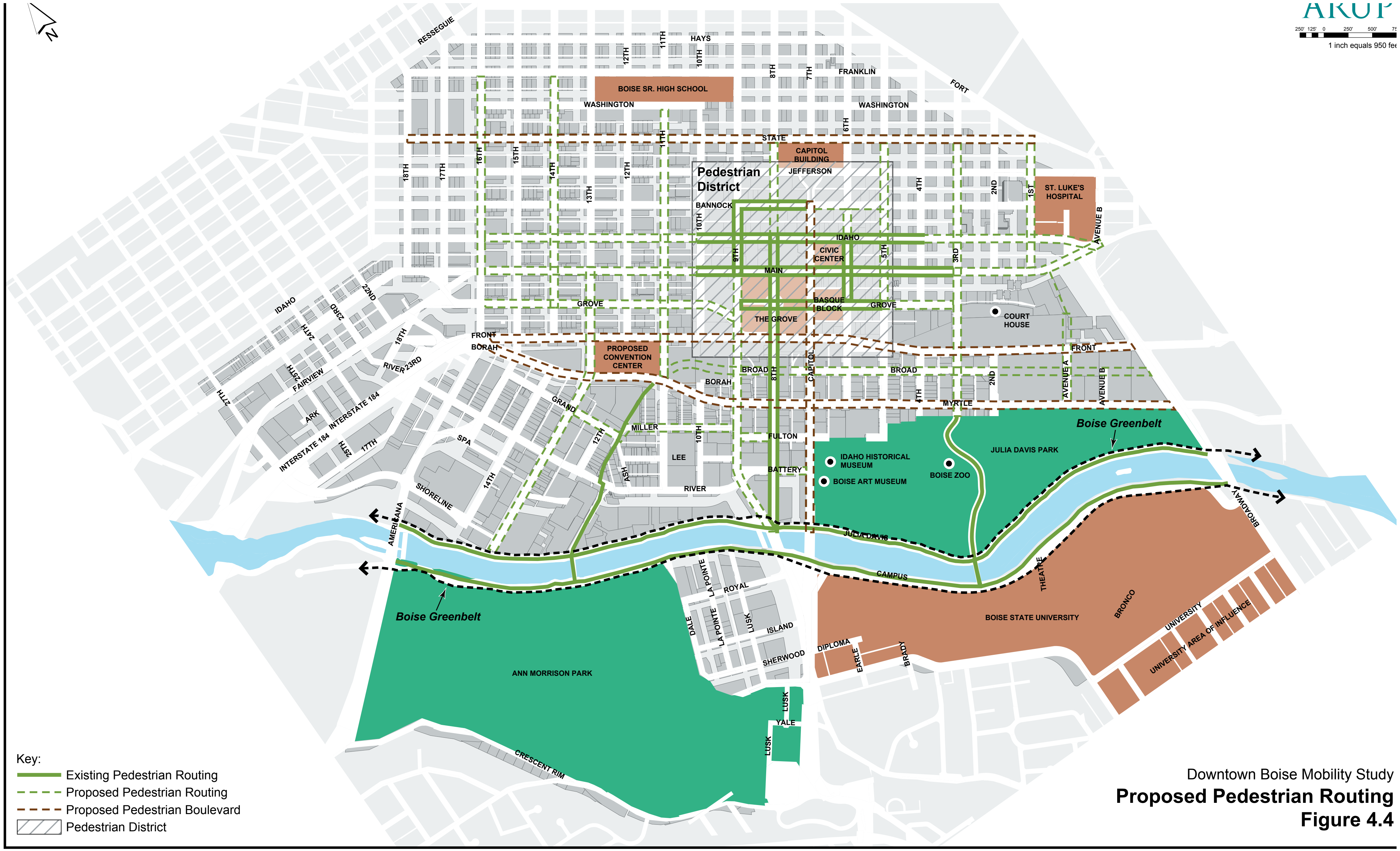
Some changes are needed to create a true pedestrian network in downtown. Pedestrian facilities that do not offer protected crossings of busy streets represent a disconnected system. Connections should first be added to the existing system to allow for a coherent and interconnected network.

8th Street at Front, Myrtle, and River Streets: While there are signalized crossings at 8th and Front/Myrtle Streets, there are no signs indicating the crossing is for the 8th Street Promenade and there are no unique design elements to signal to drivers and walkers that this is an important pedestrian connection. An enhanced crossing is recommended along with a longer crossing time. The green time on the crossing signal is 5 seconds and total crossing time allowed is 30 seconds. Both streets are very wide. Adding more time for less able-bodied walkers would offer a significant system improvement. The 8th Street crossing at River Street has pedestrian warning lights rather than a signal. The warning lights offer limited pedestrian protection on this important pedestrian route.

Grove Street: Along Grove Street, no crossings are provided to connect across 9th Street from Westside to the Grove Plaza or across Capitol Boulevard from the plaza to the Basque Block. Pedestrians are forced to cross busy streets without a signal or crosswalk. Jaywalking activity is regularly observed at these locations. Given the emphasis placed on these streets in the 1993 plan, at a minimum pedestrian crossings should be added. It is recommended these be controlled crossings with signal timings that are synchronized with Front and Idaho Streets.

Connector East of Capitol Boulevard:
The pattern of signalization of Front versus Myrtle between Capitol and Broadway work against continuous pedestrian connections from Old Boise/Eastside to Julia Davis Park. Signals exist of Front at 6th, 3rd and Avenue A, but only at 6th on Myrtle. The situation on Myrtle Street especially creates a wide-open environment dominated by vehicles.


Photo 4.19 Countdown signal in downtown San Francisco



Downtown Boise Mobility Study
Proposed Pedestrian Routing
Figure 4.4

Other Crossings: Throughout the downtown on Main/Idaho, 8th, and Grove as well as other streets, a different crosswalk marking is called for. The current crossing treatment has limited visual impact for drivers. Thicker lines and different striping approaches offer greater visibility. Other cities are adopting bolder pedestrian crossings in their downtown cores to alert drivers to proceed with caution and not encroach on crosswalks when they are stopped at traffic signals.

ADA Compliant Facilities: Downtown Boise has many different types of ramps providing ADA compliant access throughout the downtown. To ensure safe crossing on the current pedestrian network and throughout the downtown, the appropriate implementation agencies should work together to retrofit intersections with non-compliant ADA ramps to make these ramps compliant with current standards.

ENHANCEMENTS

Pedestrian Oriented Street Signage: Pedestrian oriented street signs could complement the signage system for driving in the downtown area. This is particularly true in the downtown core where pedestrian activity is highest. On many of the one-way streets, traffic signs face only oncoming traffic. Thus, if a person is walking against the traffic, there is no sign to enable them to know which street they are approaching. This forces pedestrians to walk out into the crosswalk to see what street they are on.

Countdown Signals at Key Pedestrian Crossings: Countdown signals are gaining in popularity as a device that helps pedestrians gauge when to cross at an intersection. Few people understand the meaning of a flashing red hand at a pedestrian crossing. A countdown signal tells walkers how much time they have to cross the street before the signal cycles to red. Where these devices have been applied, there is a tremendous increase in user comprehension of what the signal means and how they determine when to cross and when to wait for the next light.

Bicycle and Pedestrian Advisory Committee: Ongoing monitoring of the system and identifying emerging needs (such as new parking facilities, traffic enforcement, etc.) is also important. The best way to accomplish this is to establish a Bicycle and Pedestrian Advisory Committee that can inform Boise City about the needs of the cycling facility. This group can meet once a quarter or once a year. Some BPAC meet monthly when there are pressing needs.

EXPANDING THE PEDESTRIAN NETWORK

As downtown continues to grow and as development activities increase, the pedestrian features of these streets should be extended into the Westside and Old Boise creating longer pedestrian corridors linking these neighborhoods to the central area and to each other. The pedestrian network must also be expanded and enlivened. Designating a network of pedestrian areas and streets, with policies to support the network, will sustain and enhance the pedestrian environment. These designations could be grouped into the following categories:

Pedestrian Corridor: Area of high pedestrian activity throughout the day. Also a direct path of travel from different areas to activity centers throughout the study area which provide pedestrians and bicyclists with an alternative to auto-dominated streets. Eighth, 10th, 14th, Broad, and Grove streets are examples of pedestrian corridors.

Boulevards: Boulevards are great streets that come to exemplify a city or community. These streets are busy transportation corridors that also have a strong design element focused on aesthetic enhancements and on providing comfortable barriers between different user groups. These streets carry heavy traffic volumes, yet, they also strike a balance among different users. Boulevards have high design standards and generally emphasize landscaping, street furniture, special lighting, street oriented retail, and other elements. Michigan Avenue in Chicago, IL is an example of a Boulevard application as is Wilshire Boulevard in Santa Monica, CA.

Pedestrian District: An area of the city where there are high numbers of pedestrians on all streets and design standards encourage lot line development with store frontages on street.

"A journey of a thousand miles begins with a single step."
- Lao Tse

Walking is the primary mode of transportation for most people.

The classifications can be applied to downtown streets and a network of pedestrian corridors developed to serve existing and new development. To develop a network of pedestrian streets, selection criteria can be developed. Criteria can include:

- Presence of well-designed and well-integrated street oriented retail and commercial uses
- Serves mixed use developments
- Serves schools and academic institutions
- Extends existing pedestrian network
- Links housing to activity centers
- Links housing to parks
- Links pedestrian network to major activity centers

NORTH AND SOUTH PEDESTRIAN CORRIDORS

Avenue A: Provides an important connection between the hospital district, courthouse corridor, Julia Davis Park, and Boise State University. Specific provision has been made to provide a stairway and elevator to overcome the 12-foot grade difference between the courthouse corridor and St. Luke's property to the north.

3rd Street: Provides an important connection between Old Boise, and the east-west routes on Idaho and Main streets coming from the downtown core to the Ada County Courthouse, Julia Davis Park, and Boise State University.

8th Street: Eighth Street should be enhanced as a pedestrian corridor with pedestrian oriented signage throughout and with connections from the downtown area across to the Boise State University campus and to the Greenbelt. Eighth Street will be principal pedestrian corridor and will serve as a spine of the pedestrian network throughout the downtown area.

11th Street: Will become an important link in the pedestrian network with development of the Pioneer Corridor and the convention center expansion. 11th street will provide all modes a direct path of travel to the Main/Idaho corridor and to Grove Street. The pedestrian function can be extended north to the emerging developments along Franklin and Washington. 11th Street may also provide important links to the Boise Greenbelt. It may also be appropriate to provide a pedestrian and bicycle link across the Boise River to allow convention attendees and BSU students to access and cross the river.

13th Street: Will provide another Westside link in the system distributing pedestrian trips north and south throughout the Westside.

14th Street: Intended as a prime pedestrian corridor serving the Westside District from Main to State streets, and as the focal point of a new urban residential neighborhood planned for Westside. It connects to the Main and Idaho corridors running east-west from Westside to the downtown core.

NORTH AND SOUTH BOULEVARDS

Capitol Boulevard: Capitol Boulevard is the main passageway across the Boise River. While a major arterial serving the State Capitol Mall Complex and the Central Business District, it is an important downtown gateway. The boulevard provides a spectacular view of the Idaho Statehouse and of the foothills beyond. The Capitol Boulevard Special Design District calls for strong pedestrian features in this corridor.

EAST AND WEST PEDESTRIAN CORRIDORS

Miller-Grand Streets: These two streets combined create a pedestrian corridor from 15th Street to 9th Street, which connect the River Street neighborhood to the Cultural District and 8th Street corridor.

Broad Street: This street has the potential to be a significant connection from the proposed convention center to Broadway.

Grove Street: Runs from 16th Street to 3rd Street, providing a pedestrian route that links together Westside, the downtown core, Old Boise and the courthouse corridor.

Main/Idaho: The pedestrian theme for Main and Idaho Streets should be extended through Westside to 16th. The Westside Area Master Plan calls for growth and development along these streets.

EAST AND WEST BOULEVARDS

State Street: The Westside Plan envisions State Street transformed into a major boulevard from the boundary of the study area to the State Capitol Building and through the Capitol Mall complex. It provides an important cross-town connection in the northern part of downtown that currently has no identified pedestrian corridor.

The Connector/River-Myrtle: There is a need for a cross-town corridor that carries significant vehicular traffic through and to downtown. The Connector fulfills this function. At the same time, Front and Myrtle streets have the potential to be grand boulevards with distinctive landscaping and design enhancements that tame traffic and make pedestrian travel more pleasant. The River-Myrtle redevelopment plan calls for expanding mixed use and housing development within the corridor. As development increases, the development should be supported by a system of pedestrian links that allows residents and workers to travel through this neighborhood and reach downtown or Boise State University. There are a number of possible approaches

DOWNTOWN PEDESTRIAN DISTRICT

The downtown core is an ideal pedestrian environment and something most cities are struggling to create today. Existing plans anticipate the extension of downtown Boise's pedestrian district into Westside, Old Boise and the Cultural District. Some cities recognize the importance of these places and have policies in place to reinforce pedestrian trips in the downtown core areas. All streets have pedestrian oriented design features and have policies restricting driveways, loading bays, etc. By establishing a pedestrian district downtown, enhancements to the street system will reinforce the pedestrian mode while policies guiding land use decisions will direct how new developments can impact the pedestrian environment.

4.7 Conclusions and Moving Forward

Downtown has a rich environment for walking. The planning initiatives of CCDC and Boise City have created a downtown central business district with well planned and heavily used pedestrian facilities. The success of these efforts is evident from mere observation as there are great numbers of people walking in downtown each day. This success is also demonstrated by the informal user survey that revealed 91% of those surveyed walked once they arrived in downtown. It will be important to maintain this environment in the years to come.

Boise has been less successful outside of the downtown core, in creating and sustaining an attractive, safe, and convenient pedestrian system. Pedestrian facilities are of a mixed quality and, in some cases, are non-existent. Land use planning did not account for pedestrians and, therefore, sidewalk siting, building access, and the location of parking lots all detract from the walking environment. Boise can bring the same focus and discipline applied in the core business district to the larger downtown area making it a truly livable downtown with an active street environment. Some key findings of this report include:

- Downtown planning framework has effectively created pedestrian facilities in particular areas of downtown.
- Strategic plans identify an adequate supply of pedestrian facilities to accommodate new growth.
- Urban design guidelines requiring street oriented retail and development built to the sidewalk in the downtown core create a high quality pedestrian environment.
- Effects of design guidelines in the River/Myrtle area are having a positive impact as evidenced by the re-establishement of Broad Street between 9th and Capitol and the pedestrian-oriented streetscape on Front Street along the Courthouse project.
- Pedestrian network is not integrated into a seamless system. Links across busy streets are inadequate for both existing and new facilities.
- Higher quality pedestrian crossings are needed throughout the downtown.
- Establishing a pedestrian district along with a network of pedestrian corridors will maintain the walkability of downtown in the years to come.
- Envisioning boulevard applications to Front, Myrtle, Capitol, and State will transform these streets into inviting pedestrian and urban environments while retaining their primary function of providing automobile access to the downtown area.
- New crossings are needed along Grove, Avenue A, 3rd, 8th, Front and Myrtle Streets to support pedestrian circulation and mobility.
- A system of informational signs informing pedestrian travelers of where they are and nearby destinations is needed.

The result of this analysis will inform the development of the Vision 2030 Transportation System Plan. Deficiencies identified here will be incorporated into the system plan by addressing the deficiencies identified above. Potential policies and programs to support pedestrian access and mobility in the downtown study area will be recommended.

5. Transportation Demand Management

This element of the Downtown Boise Mobility Study evaluates current efforts and programs aimed at increasing passenger demand for alternate modes of transportation, and suggests potential enhancements. This element gives particular attention to Goal 2 of the DBMS:

Goal 2: Maximize transportation system efficiency and develop a downtown transportation system that includes and integrates a variety of travel modes, and promotes the use of alternatives to the automobile.

This chapter is organized into the following sections:

5.1 Background

5.2 Current Practice for Downtown Boise

5.3 Key FIndings and Moving Forward

5.1 Background

While most transportation projects focus on the supply side of transportation – building bridges, widening highways, extending rail lines, etc. -- Transportation Demand Management (TDM) focuses on the demand side in order to make most productive use of capital investments. TDM can serve several key purposes:

- Increase the overall productivity of the transportation network, resulting in increased economic development opportunity at a reduced cost and higher quality of life
- Save money by investing in low-cost operational programs that eliminate the need for high-cost capital improvements
- Reduce the negative impacts associated with high rates of driving, including traffic congestion, air pollution and water pollution
- Improve social equity and community satisfaction by increasing the number of transportation choices available to all citizens.

To accomplish these goals, TDM encourages the use of a wide range of alternatives to driving alone including different transportation modes and approaches. Successful TDM strategies typically leverage invest in bicycle, pedestrian, transit, and ridesharing and parking management improvements, in conjunction with parking management approaches in order to encourage offer people to make different a variety of attractive travel choices. TDM serves the core employers purposes:

- Educate people about their transportation options;
- Encourage the use of alternatives to the automobile and to driving alone; and
- Increase/Improve the alternatives available to solo drivers.

Photo 5.1 Mobility center in Long Beach, CA

TDM was pioneered in California as a strategy to help reduce highway congestion and to battle air quality problems. Most metropolitan areas now have some form of regional TDM program that promotes ridesharing, transit use, walking and biking – generally targeted to the segment of the population that drives alone to work each day. Regional TDM programs and associated employer-based TDM programs are the primary channels for educating people about travel alternatives. Most people are unaware of the benefits of TDM, such as cost savings and reduced stress, or of the services that exist to help them plan new ways to get to work or other destinations.

An effective combination of education, incentives, and assistance can lead drivers to make new choices and result in environmental benefits over time. In most instances, TDM program administrators encourage people to test a different form of transportation to see if it works for them.   If a commuter tries carpooling or bicycling to work, for example, and enjoys it or experiences significant cost savings they will be more likely to engage in that activity again. The challenge is in convincing someone to try something new and, therefore, many program focus their marketing efforts on encouraging people to "use an alternative mode one day a week." The combined impact of drivers using alternative commute modes at least one day per week is an overall reduction on the regional transportation network.

Some typical TDM programs include:

Commuter Check – allowing employees to deduct up to $100 of their income each month to pay for transit tickets.

Carpool/vanpool – carpooling is the most commonly used form of alternative transportation in the US today. Commuters share a car or van to travel from home to work each day or a few days during the week.

Guaranteed Ride Home – guaranteed ride home programs are emerging as important services for people who choose to take transit, carpool or bicycle to work. People may be reluctant to be away from their car during the day in the event an emergency such as a child getting sick or needing to work late. Providing an option for unplanned trips is an important feature for those contemplating a different commute choice.

Promotions and Events – "Bike to Work Day" is probably the most well known TDM activity/promotion in most regions. On a designated day, typically in May, local TDM agencies and bicycle advocacy organizations band together and promote riding bicycles to work as a fun way to encourage commuters to test this alternative mode. Typically stores, radio stations, and product manufacturers and retailers sponsor this event including prize giveaways and refreshments.

5.2 Current Practice for Downtown Boise

The Ada County Highway District supports the Commuteride program which that coordinates TDM related activities in the Treasure Valley region. Commuteride began operations in 1977. Currently, seven staff members are available to coordinate activities and programs throughout the region. One of the most important aspects of the Commuteride program is the partnership Commuteride establishes with employers in the Treasure Valley. Employer Assistance Representatives (EARs) work closely with area employers to develop Alternative Transportation Programs for employees who are interested. EARs can tailor a program to fit the specific needs of an employer and its employees by conducting commuter surveys, developing employee home location maps, and/or by doing special promotional events. Downtown Boise offers the most promising environment for developing an extensive TDM program due to the high concentration of jobs in the area, the convergence of several major transportation networks, and the availability of travel alternatives for commuting between work or school.

The following TDM programs are currently available in the Boise metro area:

Transi-Cheks
Transi-Cheks encourage commuters to try an alternative mode of transportation. The program provides commuters with $20 per month vouchers that can be used for the first three consecutive monthly vanpool fares or bus passes. Riders must purchase a monthly pass or seat on BUS, Commuteride Vanpool, Commuters Bus or Treasure Valley Metro to be eligible for the Transi-Chek.

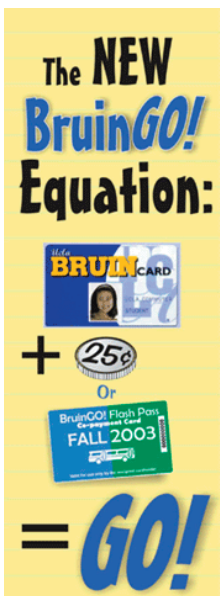
Guaranteed Ride Home
Carpoolers, vanpoolers, bus riders, walkers and bicyclists are all eligible for reimbursement for a taxi ride home. The participant must be registered with the Commuteride office prior to the taxi ride. Rides are available for emergencies or unscheduled overtime situations. To be eligible for reimbursement, the participant must have arrived at work using an alternative to driving alone. There is a maximum of six taxi rides or $300 in fares annually per participant

Vanpool Bucks
ACHD Commuteride has developed a fare system for Commuteride Vanpools called Vanpool Bucks. Vanpool Bucks are prepaid vanpool fare coupons that employers can provide to their employees as a commuter benefit. The benefit can be used to cover the cost of commuting to work on Commuteride Vanpools. Vanpool Bucks are available to employers to purchase in denominations of $1, $5, $10, $24, $50, $65 and $100.

Parking-Cheks
The Parking-Chek Program is designed to encourage downtown Boise commuters to carpool. The program underwrites $10 toward the cost of a monthly parking space in a participating downtown parking facility for carpools of two or more people. Commuters must pre-register for the program by completing a Commuter Parking-Chek Application.

Commuter Check
The Transportation Equity Act for the 21st Century (TEA-21) provides substantial flexibility and financial incentives to employees and employers to use transit and vanpools. Under current law, Section 132 (f) of IRS Code, employers may provide employees with the following tax-free benefits: Up to $100 a month/$1,200 a year for transit or vanpool commuting expenses and/or up to $185 a month for parking expenses. Transit and vanpool benefits must be provided in addition to compensation. Employees may not choose between receiving either benefit or salary.

Events and Promotions
"Commuter Challenge" is an annual contest in Treasure Valley hosted during National Transportation Week in May. The goal is to encourage employees to take alternative modes of transportation to work over the entire week. It generates a significant amount of interest throughout the region and often receives a high degree of coverage in the local media.



TDM programs are sporadic and are typically implemented by large employers that are interested in enhancing quality of life for their employees or due to agreements with Boise City that were established as a condition of development. For example, Saint Luke's hospital has the most aggressive program for encouraging employees and visitors to utilize transit options or to do more to travel outside the peak hour. The Saint Luke's TDM program encourages employees to use alternative modes of transportation to reach their work place or to travel from peripheral lots to the medical center. Currently, 390 employees participate in the summer and 222 participate in the winter. St. Luke's regularly provides reports on employee participation rates to Boise City.

5.3 Key Findings and Moving Forward

There are opportunities to create additional TDM programs, increase participation in existing TDM programs, and increase the effectiveness of synergies between TDM activities in downtown Boise, particularly given the existing built environment in and around downtown. With some effort, Boise could realize gains in the overall use of alternative modes for work, school, shopping and/or recreation trips. Commute trips (work and school) will be the most easy to target through major employers with pre-existing programs.

ENSURE VIABLE ALTERNATIVES ARE AVAILABLE

TDM programs are focused on expanding transportation choices and balancing the playing field between modes. In order to get people to use alternatives, they must be available, and they must be at least as attractive as driving alone. Thus, the first step in the TDM element would be to put alternatives in place in the following ways:

1. Implement existing recommendations for bicycle and pedestrian network improvements in downtown Boise.
2. Implement existing recommendations from the ValleyRide ROCIP.
3. Establish a dedicated funding source for transportation/ TDM in Boise City (e.g., city-based, TDM grant, employer fees).

These three steps will ensure that people can reasonably choose alternatives to driving alone including walking, bicycling, transit, or ridesharing.

SAFE ROUTES TO SCHOOLS

Nationally, the rates of children walking and bicycling have plummeted - with only one in seven school children who could walk or bike to school actually doing so. Whereas 70% of parents today walked or biked to school when they were children, only 18% of their children do the same. Programs that create safe routes for walking and bicycling to school have tremendous, immediate impacts by reducing the number of car trips generated each day by parents transporting their children to school. It also develops a different set of transportation behaviors with pedals and feet being the primary methods rather than the car. Not only does this support environmentally sustainable forms of transportation, it also instills healthier behaviors for children and increases their daily activity. More importantly, Safe Routes to Schools programs have been shown to be among the most cost effective tools for reducing AM peak period congestion; in the national pilot program in Marin County, CA, key intersections saw a 25% reduction in traffic within a year of program initiation. (See http://www.saferoutestoschools.org/ for detailed results.) The National Center for Walking and Bicycling at University of North Carolina also provides online resources for how to start a Safe Routes To Schools Program at http://www.bikewalk.org.

STUDENT TRANSIT PASS PROGRAM

BSU and ValleyRide could enter into an agreement where all students on the BSU campus pay a fee to obtain a monthly bus pass from ValleyRide or a sticker to place on their student ID card. The transit pass could be used throughout the school term. Student pass programs are campus-wide and cover all students – even if some choose not to ride transit. In many cases, students approve an additional fee to pay for transit access throughout the school term regardless of their willingness to ride transit. University pass programs are successfully employed on large and small campuses throughout the US. Several campuses, such as University of California at Santa Cruz, have a 50% alternative mode share which is established through a strong collaboration with the local transit operator, limits on parking supply, parking charges, and a robust network of bicycle and pedestrian facilities to ensure people have options to driving alone.

BSU/DOWNTOWN BUSINESS ASSOCIATION SHARED BIKE PROGRAM

This is not a "yellow bike" program where bikes are left scattered throughout the downtown for use by any and all. Instead, a shared bike program would allow students or commuters short-term use of a bicycle through local bicycle shops that would serve as partners in this type of a program. Such an approach addresses the problems of unsuccessful "yellow bike" programs in the US, while achieving most of those programs' goals.

INCREASE EXISTING "PARKING-CHEKS" FOR 2+ VEHICLE OCCUPANCY

Currently Parking-Cheks for $10 are offered to 2+ carpools in order to underwrite the cost of parking. Commuteride could offer higher Parking-Chek amounts for carpools of 3 and 4 commuters. For example, $15 for carpools of 3 persons and $20 for carpools of 4 persons. An increase in vehicle occupancy, and associated decrease in vehicles, can have significant benefits.

PARKING CASH OUT

Most employees who commute by car receive a free parking space and think of that space as a free space. In reality, the "free space" is a fringe benefit with a typical value of $50 to $100 per month. Employers offer employees subsidized parking because these benefits are usually untaxed and most employees expect this benefit. For employees where free parking is provided that do not use a parking space, they are foregoing a fringe benefit offered to their colleagues. Parking Cash Out programs offer a cash payment to employees who do not use a parking space when they come to work. It is usually of equal value to the parking space provided to their colleagues. Some employers offer this benefit out of "fairness" in an effort to provide all employees with the same benefit package. Others do so to be good corporate citizens, while still others do so to provide fewer parking spaces to their workforce. This is one of the most effective techniques for encouraging the use of alternative modes and it helps to level the benefits between those who drive alone and those who take alternative modes. CCDC, Boise City, or a Downtown Traffic Management Association would implement such a program.


Photo 5.2 Long Beach Passport bus stop

Photo 5.3 Long Beach transit mall

DYNAMIC PARKING PRICING

There are seven public parking garages in downtown Boise with 2,681 parking spaces. There are also 3,191 metered parking spaces downtown with another 12,809 spaces for private use. Some downtowns such as Vancouver, BC place a surcharge on parking – particularly long-term parking – to generate revenue to support public transit, roadway investments, and alternative transportation. These surcharges or parking taxes are applied throughout the downtown rather than just on publicly provided spaces. These charges help diminish the attractiveness of driving alone to work. At the same time, short-term parking rates are kept low to make the downtown area an attractive place to come for shoppers and visitors.

At $1 per hour, parking rates are minimal for short and long term parking use in Boise at this time. CCDC and Boise City could experiment with changes to the long term parking rates to charge more for long term parkers. This would generate additional revenues for CCDC garage maintenance activities. Additionally, higher long term parking rates could help shift some solo drivers to vanpools, carpools, and other alternative modes.

PARKING MANAGEMENT

Some downtowns are now seeking to manage their parking supply by establishing shared parking arrangements and parking maximums in specific areas such as downtown. Vancouver capped the number of parking spaces that can be provided downtown, which has forced the public and private sectors to think carefully about how employees, visitors, and workers will arrive to downtown destinations. Most cities that pursue this option will also complement the cap on parking supply with corresponding service enhancements for transit and system expansion for bicycle and pedestrian facilities. TDM measures are most effective when coupled with strategic investments in transit service or changes in public policies such as parking cash out or parking pricing programs. Worksite specific programs can help address transportation demand or issues at a particular location but on an areawide basis may have little impact.

INCREASE TDM MARKETING EFFORTS

Existing community/employer education and marketing efforts could be expanded to increase the awareness and understanding of TDM and its benefits. Information is critical to developing the necessary support for alternative travel modes to the single occupant vehicle. Marketing helps define an employment site culture that is enthusiastic about using travel alternatives. Examples of marketing activities that the City can pursue, either directly or to participating employer sites:

- Increase promotion of the TDM website and be sure to include content that describes all aspects of the TDM program, program forms,, transit and shuttle schedule information, links to transit providers, and other links to area resources.
- Create a real-time, on-line ridematching system.
- Develop/provide enhanced print marketing information to employees. A simple postcard that advertises the existence of website resources is often an effective marketing approach.
- Hold an annual carpool/vanpool registration event and sponsor a contest to help get names in a ridesharing database.
- Provide an outlet area where employees can pick up transit passes and information.
- Conduct educational programs throughout the year.
- Establish a Commuter Club for employees who use transportation alternatives by creating a discount card for the on-site retail shops, offering monthly prizes and other incentives.
- Establish an individualized marketing campaign to educate people who demonstrate an interest in learning more about transit or other TDM options. Models exist for such programs if the City is interested in learning more.

In addition, a campaign could be developed to engage more employers to create their own TDM programs for employees. Like a fundraising campaign, the City can develop annual goals to solicit additional employers. Focusing on companies that provide products and services related to transportation and health is a good place to start, since they will share a common mission and may be interested in sponsoring events in exchange for public relations benefits.

EMPLOYER-PROVIDED FLEET VEHICLES

A pilot project could be conducted with several large employers that are able/willing to provide fleet vehicles to employees. These would be vehicles free of charge - or at a limited fee -- to employees who ride transit, bike, walk, or carpool to work. These vehicles would enable the employees to continue to use a TDM method to get to work even on days when they need cars for company business, medical appointments, etc. Employer TDM coordinators would manage the on-site, employer-provided fleet vehicle programs that would be designed to provide cars to people who need them on an occasional basis. The City could also seek outside funding or sponsors for fleet vehicles, which could then be offered as an incentive to get new employers to start a TDM program.

TDM ORDINANCE

Several cities around the country, most notably South San Francisco, CA, and Cambridge, MA, require all new developers to implement TDM as a condition of development. Both Cambridge and South San Francisco require developers to implement an array of programs such that peak period auto trips are reduced by 25% of what would otherwise be predicted.

RESIDENTIAL PARKING PERMIT DISTRICTS

In order to minimize the potential for spillover parking onto nearby residential streets, it is important that residential parking permit districts be established in neighborhoods surrounding the downtown. Such districts allow local residents to purchase a permit to park on the street in their neighborhood, but restrict commuters from doing so.

There are several important issues that must be addressed in establishing a parking district:

- Hours of enforcement. If spillover parking from office uses is the concern, brief daytime hours of enforcement will suffice, such as 10:00 AM to 3:00 PM. If spillover from entertainment uses or nearby apartment buildings is the concern, nighttime-only enforcement is appropriate, such as from 5:00 PM to midnight. Some jurisdictions enforce 24 hours, but it should be noted that effective 24-hour enforcement is costly.
- Short-term guest, visitor and delivery parking. Many jurisdictions allow two hours of free parking without a permit in all residential districts in order to address the needs of most short-term visitors and deliveries while still keeping out all-day commuters. Other jurisdictions require a permit at all times, but such restrictions can be inconvenient for guests.
- Long-term visitors. Long-term guests and visitors require special consideration. The most customer-friendly permit districts allow residents to acquire guest permits in advance and simply write in guests' license plate number and arrival and departure dates. Others sell guest permits, sometimes as one-day permits where the appropriate date can be "scratched off," like a lottery ticket, whenever needed. Less customer-friendly jurisdictions require residents to stop by the parking office and pick up long-term guest permits in advance.
- Fines and enforcement intensity. Fines should be established to cover the costs of enforcement and ensure a balance between effective deterrence and undue annoyance. Fines that are overly high will inevitably annoy a resident or guest who inadvertently forgot their permit. Fines or enforcement rigor that is too low will result in spillover parking.
- Customer friendliness. Some permit programs focus on law enforcement, other on customer service. In cities such as Boise, a high level of customer service is likely called for. Permit processing should be simple and available

Photo 5.4 Directional map in Westwood, CA

by mail or online. Temporary permits should be readily available for those who have recently arrived in the city or are awaiting new license plates. Guest permits should be easy to acquire and available in advance. Fees should be kept low for all resident permits, sufficient to cover administrative costs only. In some cases, developers can cover administrative costs of expanding permit areas to mitigate potential spillover from their project.

Other tools can also be used to enhance residential permit programs, such as:

- Restrict some users from joining. For new projects that have significantly higher density or lower parking ratios than existing development, it is possible to deed restrict them from joining an existing parking district as a condition of approval. For a major residential project that wishes to build very little parking for its future residents, this can be a useful tool for assuaging existing residential neighbors.
- Limit the number of permits per household. Some residents may be concerned about households with many cars crowding up local streets. It is possible to limit the number of permits per household or per adult resident, or to offer a graduated fee structure with the second or third permit being more expensive than the first.
- Allow commuters to "buy in." If there is surplus daytime parking capacity in a neighborhood, residents can allow a limited number of commuters to purchase daytime-only permits for their neighborhood at market rates. Such revenue can be allocated to neighborhood improvements such as utility undergrounding, traffic calming and street tree maintenance.
- Market pricing. Recognizing that city streets and parking thereupon have a very high value, it is possible to allow for marketing pricing of residential permits. The permits sold can be limited to the spaces available. Rather than creating a waiting list, the city can use price as a tool for allocating demand, effectively auctioning its permits. Revenue can also be used for neighborhood improvements.

Implementing such a program would require a vote among the affected residents; if revenues are dedicated to specific uses, the vote would need to be a supermajority.

NO MINIMUM PARKING REQUIREMENT

In order to achieve the pedestrian-friendly downtown Boise seeks, and ensure that transit access is maximized and traffic congestion is minimized, it is critical that developers not be forced to build more parking than they need. Calculating actual parking demand for any use is tricky. Factors such as transit accessibility, parking charges, mix of uses, and Transportation Demand Management programs can reduce parking demand in the Downtown by more than 50%. For some uses, however, particularly the first projects to be built, parking demand reduction may be small. In addition, parking demand may change over time as uses change and TDM programs mature. As a result, no specific minimum parking requirement is necessary or appropriate in the Downtown. If specific trip reduction goals are implemented, existing minimums should be converted to parking maximums in the Downtown. Parking maximums provide an extra level of assurance that developers will implement TDM programs in good faith.

The elimination of minimum parking requirements is not new or radical. Most mid-sized cities in Oregon, for example, have eliminated parking minimums in their core areas. Several cities in Florida have done the same. Minimum parking requirements were recently banned throughout the United Kingdom.

In order to avoid creating unintended negative consequences, however, minimum parking requirements should not be eliminated until residential parking permit districts are in place to prevent spillover parking onto neighboring streets.

UNBUNDLED PARKING COSTS

As with commercial projects, it is important not to force residential developers to build more parking than is needed, nor to force residents to buy more parking than they will use. Key here is "unbundling" the cost of parking from the cost of housing. In multifamily rental projects, parking should be rented separately from apartments, with tenants not required to rent any parking at all. Parking should be designed so that it is primarily unattached to specific units, allowing some households to have several cars and others to have none.

In condominium developments, it may be appropriate to have some parking attached to units and some as a flexible pool of parking. For example, each condominium unit may come with a single-car attached garage that automatically comes with the unit. Parking needs above and beyond that can be met with shared garages and surface spaces that can be leased or sold separately.

In single-family for-sale housing, parking is typically attached to the unit and cannot be shared with other units. In this case, it is important only that the owners be allowed to convert their garage to another use, such as a spare bedroom or workshop, if they do not need it to store a car.

In all cases, market pricing would apply as in commercial projects, but parking should not be rented by the hour, which may encourage residents to commute more frequently by car. Instead, parking should be rented by the month or year, with partial refunds available if they sell their car.

IMPACT FEES

A final Downtown-wide tool the city may consider to meet its goals is an impact fee. Cities commonly use such fees to cover "external" costs a new development may impose upon the surrounding city, such as a traffic impact fee used to widen roads to serve the new development. Impact fees must be directly related to specific, quantifiable impacts that can be attributed to a project, and resulting revenue must be used to mitigate those impacts. Nevertheless, the courts have shown tremendous flexibility in how impact fees can be used.

Besides the commonly used traffic, sewer and water impact fees, fees can be applied to increase transit service to meet new demand the project will create. Fees can also be used creatively to minimize traffic as well as mitigate it. A transportation impact fee, rather than a traffic impact fee, could be used to fund start-up costs for any of the programs in this chapter. As another example, rather than charging a per-square-foot traffic fee, the city could instead impose a fee for each commuter parking space, giving developers a financial incentive to focus on peak period trip reduction.

CREATION OF A TRAFFIC MANAGEMENT ASSOCIATION

Given the resources and interest in the Downtown Boise Mobility Study, there are opportunities to explore the creation of a traffic management area and the creation of a Downtown Traffic Management Association DTMA. DTMAs are created to help employers, schools, government and other major trip generators to encourage people to use alternative modes. By coordinating these efforts across an entire area, greater impact can be achieved. It also allows members of the association to leverage their efforts and coordinate among member organizations. It also ensures every organization has access to same set of information resources. Discussions about a DTMA have been intermittent in Boise since the mid-1990s. CCDC conducted discussions with representatives from large businesses and corporations, and with other agency staff and representatives from the State of Idaho to consider parking and transportation issues in Downtown Boise. The Downtown Parking Access and Transportation Committee met regularly between 1999-2001 and supervised the 1999 Greater Downtown Parking Study. An outgrowth of that committee, the Downtown Parking Partnership formed during that Study and has met infrequently since 2001. Recommendations and discussions over the past ten years included consideration of a transportation management organization to coordinate and encourage use of alternate transportation. However, parking availability and fairly low parking costs in the downtown offered little incentive to businesses to support serious efforts to promote alternate transportation. Some large employers such as St. Luke's Medical Center, the City of Boise, and smaller employers as well, did choose to implement strong employee incentive programs. Others, however, such as the State of Idaho, indicated little or no support toward a TMA (Transportation Management Area). An areawide focus is needed for a TMA program to be successful.

Creating a DTMA would require an ongoing source of funding and should be housed within ACHD's Commuteride program. Commuteride would lead ongoing efforts to reduce single occupant driving by tailoring a program to meet the needs of downtown workers, employers, and BSU students, staff and faculty.

6. Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) consist of the application of technology used by the transportation industry to save time, money and lives. The ITS umbrella covers a wide range of technologies from advanced traffic signal control systems to advanced traveler information systems. Ada County Highway District has implemented ITS in downtown Boise with vehicle detection devices at some intersections, interconnection between adjacent signals and centralized management of groups of signals. Additional elements are planned that will affect mobility issues throughout Boise. These technologies generally enhance traffic operations and emergency services. The essential attribute of ITS is the ability to manage and communicate vital transportation system information. This includes information about how the transportation system is working and where incidents like traffic accidents are causing problems in the system. In some cases ITS allows adjustments to be made remotely to improve system operation such as adjusting signal timing and dispatching emergency personnel. ITS provides information on how motorists, maintenance personnel, and emergency responders can most effectively utilize the transportation resources available.

This chapter provides a broad scan of ITS components and capabilities. Recommendations suggest the potential impacts of ITS plans in downtown Boise. This chapter is organized into the following sections:

6.1 Key Findings

6.2 Current Conditions and Infrastructure

6.3 Conclusions and Moving Forward

Please see also the following appendix:

Appendix D. Intelligent Transportation Systems: Data Collection Notes

6.1. Key Findings

Review of the current ITS infrastructure in downtown Boise shows a growing network of equipment in the field. Communications technology links this equipment together and to control centers. The level of integration continues to develop as additional connectivity is established between emergency dispatch facilities, communications centers and the Ada County Highway District (ACHD) traffic management center (TMC). The system continues to evolve as downtown needs change.

The ITS network in downtown Boise consists of seven surveillance cameras, dynamic parking garage signage, the ACHD TMC, an evolving communications network, incident management planning, and the traffic signal technologies. Traffic signal technology includes updated controllers and emergency preemption. These elements are discussed in further detail later in this report.

The data collection effort provides a high level view of the ITS in downtown Boise, rather than a detailed discussion of issues. In general, the current ITS capabilities are being well managed and plans are in place to develop additional capabilities. The existing ITS elements effectively aid in traffic and congestion management. The expanding capabilities are appropriately aimed at continuing this approach. Following are the specific findings:

- ACHD replaced and upgraded all of the signal controllers in the downtown core two years ago. This work dramatically improved timing plan options at all locations. The upgrade provided the capacity at each signal for an unlimited number of timing plans. As new timing plans are developed and loaded to these controllers downtown traffic flow will improve.
- Many of the traffic signals in the study area utilize timing plans that have not been updated since 1992. Development in the study area has produced new traffic generators while others have disappeared. Altered traffic patterns require

more effective timing plans. Signal timing on Front and Myrtle Streets has been adjusted, but the signals in the core of downtown have not yet been re-timed.

- Electronic communication between existing traffic signals is slow. Future communication demands associated with ITS and other functions will necessitate additional capacity. Modifying signal timing in response to changing traffic conditions requires direct communications and a reliable connection. Faster, dedicated and more advanced technology is needed to allow TMC personnel to effectively respond to congestion and enhance mobility.
- ACHD has added surveillance cameras in the downtown area. The agency continues to expand the network of cameras to assist in traffic management and emergency response. The cameras allow TMC personnel to visually monitor and verify conditions and take appropriate action more confidently and rapidly.
- The existing ITS Plan and architecture for the Treasure Valley completed in 1999 is already dated. The plan included architecture reflecting conditions at that time. Technology changes necessitate a revised plan.
- The current ACHD traffic management center is reaching its capacity. As the transportation management needs of the area have grown the systems housed in the center have expanded and no longer fit efficiently into the current facility. In addition, new integration opportunities continue to develop and, if taken, will both provide significant benefits and require additional space and functionality.
- Better information regarding parking availability at the parking garages will help to inform motorists and alleviate some of the parking difficulties. While on street parking is readily available in downtown within easy walking distance of any destination, a perception does exist that on street parking is scarce. The on street metered parking is not always available immediately in front of a particular business. The public parking garages are seldom full even though most downtown businesses validate parking.

6.2 Current Conditions and Infrastructure

As noted earlier, ITS efforts began in Boise with enhancements to traffic signals starting with the use of vehicle detection devices at some intersections. New technologies were implemented as the industry changed and advanced technologies became available. These technologies include dynamic message signs, advanced signal control, emergency vehicle signal preemption, surveillance cameras, and remote weather sensing. ACHD built a traffic management center in the late 1990's to manage and integrate these elements into a more comprehensive system. The center relies on real time communication with the equipment in the field to both collect data and disseminate information. Many street and highway construction projects include communications systems for this very purpose. As the infrastructure grows so do the capabilities of the TMC and the system overall.

An ITS plan was completed for the Treasure Valley in September 1999 which identified projects for the following 20 years. The projects included deployments of equipment and communications infrastructure in the field as well as development of the TMC capabilities. The plan also included a regional ITS architecture which guides and promotes integration of system components. The planning step was extremely important since the benefits of ITS stem largely from integration of various systems. While this plan addressed the entire valley, many projects had a direct impact on downtown Boise. Many of the ITS projects recommended in the plan have been completed and new local transportation issues and direction have developed. This section provides an overview of the current status of ITS in Boise with a particular focus on the downtown area. The ITS elements in the downtown area are shown in Figure 6.1, except that traffic signals are not shown.

SURVEILLANCE CAMERAS

Cameras are used to visually observe traffic flow, identify incidents and monitor changing conditions on streets and freeways in Boise. ACHD installs and maintains these cameras for their use at the TMC and provides the live camera feeds to several other agencies and the local media including:

- Boise State University
- Channel 2 News
- Channel 7 News

In addition, in 2004 they plan to establish camera feeds for the following:

- ITD District 3
- ITD Headquarters
- Channel 6 News
- The Idaho State Police and State Communication Center
- Ada County Sheriff Dispatch Center
- University of Idaho

Of the 41 cameras currently in use by the TMC throughout Boise, seven are in the downtown area. The one located along I-184 at about 17th Street is shown circled in Photo 6.1 and the locations of all six in the downtown area are shown on the map in Figure 6.1. ACHD also has plans to put eight more into service in the next six months but none of these are in the downtown area.

The cameras can be panned, tilted and zoomed from the TMC allowing them to be focused in any direction on nearby traffic. The images help ACHD respond to traffic demand by adjusting signal timing and notifying emergency services of crashes or other incidents. The images will eventually assist law enforcement for similar reasons and can translate to improved response times for all emergency service providers. The local media uses the camera feeds to provide timely and accurate reports of traffic conditions to the public. This can allow motorists to make more informed decisions regarding their trips, which generally contributes to reduced congestion by encouraging some motorists to avoid problem areas.

INCIDENT MANAGEMENT

Incident management strategies are among the most effective means of combining rapid response for the sake of saving lives with the importance of minimizing traffic-delay-related economic impacts of incidents. The Federal Highway Administration in its November 2000 Incident Management Handbook, estimates that between 50 and 60 percent of all traffic delay in metropolitan areas nationwide is attributable to incidents. Planning for the entire range of incidents from sporting events and concerts to vehicle accidents and weather can provide more effective information handling and overall incident management.

In August 2001 ACHD and ITD cooperatively produced the Incident Management Operations Manual for the Treasure Valley I-84 / I-184 Corridor. This document provides incident management plans for the interstate routes in the Treasure Valley including I-184 into downtown to its terminus at 13th Street. The plans identify different types of possible incidents and distinct segments on the freeways, providing detailed strategies for managing an incident with in each segment. I-184 from Chinden Boulevard to 13th Street is the only portion within the downtown mobility study area. However, incidents on other segments could certainly impact traffic operations within downtown. These plans provide well-organized approaches to traffic management during an incident and are aimed at minimizing congestion and delays that could otherwise result due to lane blockages by the incident itself or emergency response operations.

All of the traffic signals in downtown Boise are equipped with emergency vehicle preemption allowing emergency vehicles to respond to accidents and other incidents more rapidly. Many events that generate an emergency response do not directly involve the transportation network. Preemptive signal equipment benefits all emergency response by permitting emergency vehicles to move through the system more quickly. Such actions allow traffic operations to return to normal more rapidly. This technology is explained in more detail in the discussion of advanced signal control.


Photo 6.1 Surveillance Camera at I-184

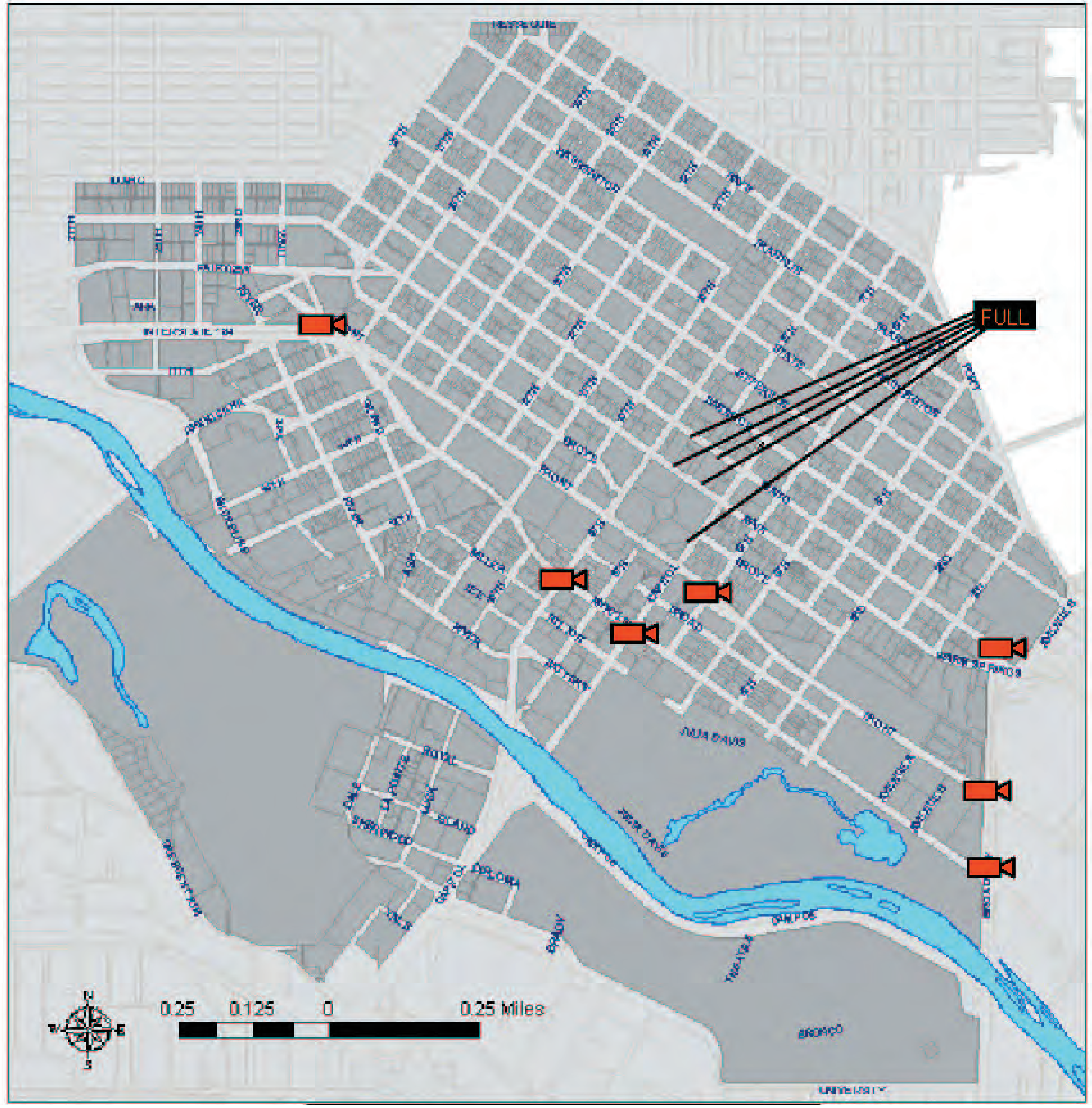


Figure 6.1 ITS Elements in Downtown Boise


Traffic Surveillance Camera

Parking Garage Sign

ADVANCED SIGNAL CONTROL

Traffic signals control the flow of traffic in downtown Boise. While other factors impact traffic flow, the signals provide day-to-day control and a moderating influence to incidents and special events. A separate element of the downtown mobility study will address traffic and signals in detail; however, the more advanced control approaches and the relationship with the ACHD TMC are discussed here.

The signals operate on timing plans programmed into the controllers located at each intersection. Personnel at the TMC can adjust timing plans remotely when problems arise. The communications technology currently used to accomplish this in the study area does not provide a high-speed connection and will be upgraded as part of an upcoming project. This work is discussed further in the section regarding communication technology and infrastructure. In addition, some signals in the study area automatically detect the presence of vehicles at the intersection and make adjustments to accommodate them. The signals in the core of downtown, however, are not equipped with this feature and run fixed timing plans.

As mentioned above, all of the signals in downtown Boise have emergency vehicle preemption capability. This technology detects a signal emitted by properly equipped emergency vehicles and adjusts the signal to allow the emergency vehicle to pass through the intersection quickly and safely. Once enacted, the system programming facilitates signal network recovery thereby resuming normal operations and traffic progression.

In 2002, ACHD completed a project to replace all of the traffic signal controllers and cabinets in downtown. The software used by these controllers is more advanced and allows an unlimited number of timing plans. ACHD is planning a project to develop new timing plans for the morning peak, the midday period, and the evening peak. These modified plans will replace the current timing programs to provide signal operations that more appropriately address traffic volumes and movements for the respective times of day. The midday peak timing plans will likely also be used for weekend signal operations. In addition, this work will also provide adjusted timing for the pedestrian signals as necessary.

A potential future project being proposed at ACHD is to develop and implement timing plans for special events in the downtown area. This would include events such as hockey matches at the Bank of America Center and BSU football games.

TRAFFIC MANAGEMENT CENTER

Intelligent Transportation Systems rely on data sharing, communications infrastructure and integration to effectively manage information. For many ITS networks the focus of this integration is a traffic management center. The ACHD TMC shown in Photo 6.2 collects transportation network data; processes and maintains the data; and disseminates information to other agencies, the local media and the public. TMC traffic managers direct the information to make adjustments to traffic signals and other ITS elements, more effectively responding to incidents and congestion. For instance, one dynamic message sign (DMS) on I-184 and two on I-84 are controlled from the TMC. While these elements are not located in the downtown area, they sometimes impact traffic entering or leaving Downtown.

Photo 6.2 Inside the ACHD Traffic Management Center

The data collected consists of traffic conditions, incident detection, congestion levels, and construction activities. Most of it comes from monitoring done at the TMC, reports from personnel in the field, or, in the case of construction projects, from event planning prior to the traffic impacts. In addition, reports of some impacts to traffic are generated by the public and come to the TMC through close coordination with emergency dispatch operations.

The TMC is currently operated from 5:30 a.m. to 6:30 p.m. Monday through Friday with one operator on duty during this time period. There is also an operator on call during off hours. The TMC coordinates with local media to allow live traffic broadcasts from the TMC and to disseminate incident information to the public. ACHD is currently in the process of implementing new traffic management software at the TMC. The software will allow personnel to more efficiently and effectively manage the flow of information, and facilitate rapid dissemination of information to other agencies and local media.

ACHD is working with ITD, Ada County Sheriff's Department, and others to plan for a new larger TMC that can provide even greater functionality. Limited space available at the current facility provides on impetus for a new facility. Electronic hardware associated with media connectivity and data management is currently stored in a crowded area behind the video wall as shown in Photo 6.3. To add capability, more space is needed. A feasibility study is proposed to explore the needs and facilitate coordination of numerous agencies that will be directly affected by a new center. Anticipated benefits include a greater level of integration and coordination among information management, emergency response, and highway maintenance personnel and activities.


Photo 6.3 Limited Space for Hardware at TMC

COMMUNICATIONS TECHNOLOGY AND INFRASTRUCTURE

The communications network is the key to functionality of ITS. The network provides the means to rapidly move vital information managed by the systems and personnel. For example, camera images showing an accident, travel through the communications network to the TMC where an operator to places a call, to the appropriate emergency response agency and sends a warning message over the network to be displayed on a dynamic message sign. The reliability and speed of the communications infrastructure is vital to the effectiveness of the ITS network.

Communication to the surveillance cameras in the downtown area is accomplished by fiber optic cable. ACHD also uses wireless technology to communicate with some cameras outside of downtown and could use this approach for future installations if necessary.

While the traffic signals in the downtown area are currently accessible electronically, the connections are slow. As mentioned above, ACHD is launching a project to install fiber optic cable to all of the downtown signals, which will provide greatly increased communication speed and allow for expanded options for future camera installations. This project is scheduled to be completed by April 2004 and will also provide fiber optic connectivity to Boise City Hall and the new Ada County Courthouse.

In addition, ACHD is working with the Idaho State Police (ISP) to install a fiber optic cable connection between the ISP operations center and the ACHD traffic management center. This connection will allow the TMC to coordinate operations closely with ISP including providing surveillance camera feeds to the ISP center. While this project has limited direct benefit for the downtown area it is an important element in the overall communication and emergency response picture.

Another fiber optic project is being planned by the City of Boise and will create a fiber optic cable ring throughout the city. In the downtown area it will follow a route along State Street to 9th Street continuing south across the Boise River and out of the downtown area along Capitol Boulevard. Some of the bandwidth installed by this project will be available to ACHD and will also expand the communications capabilities throughout the city allowing greater flexibility in choosing locations for future ITS installations.

TRAVELER INFORMATION AND PARKING GUIDANCE

In addition to the live television and radio broadcasts from the TMC, ACHD provides traveler information via the Internet through its partnership with BoiseTraffic.com. Along with the traffic map shown in Figure 6.2, this web site provides information regarding road construction and links to other transportation resources in the Treasure Valley.

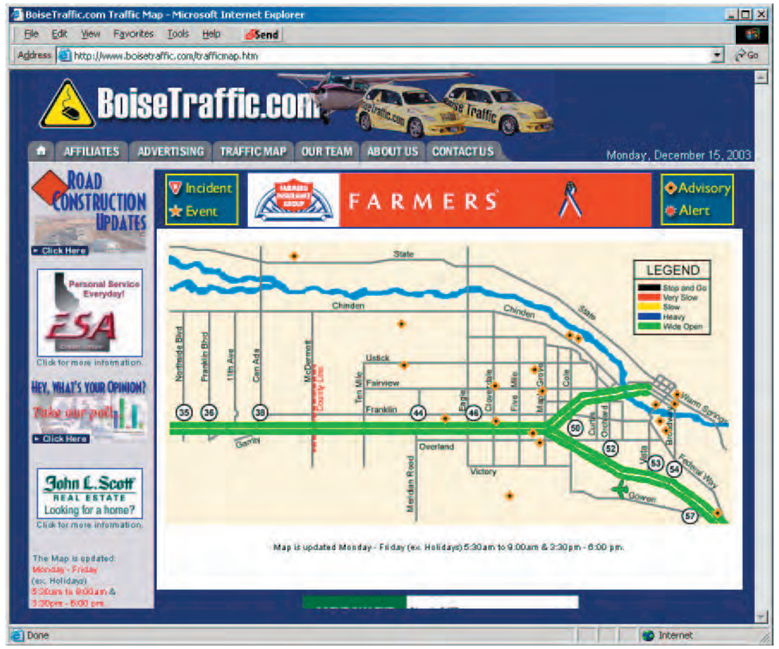


Figure 6.2 Traveler Information Internet Display

Photo 6.4 Parking Garage Status Sign

Photo 6.5 Pedestrian Warning at Parking Garage Exit

As with many metropolitan areas, one of the issues for motorists in downtown Boise is parking. The downtown parking system consists of both on-street spaces and spaces in public and private parking garages. On-street parking spaces are intended to satisfy short-term parking needs generated, for example by customers of retail businesses and restaurants, with overflow using the parking garages. On-street parking spaces are metered and typically have a 1 - 2 hour limit. At certain times during the typical business day there is more demand for close-in parking than there are on-street parking spaces. At these peak hours drivers searching for on-street parking may have to park four-five blocks from their destination or utilize the parking garages which are highly convenient to most downtown businesses. Long term parking is supplied by parking garages, which have a significant number of spaces. Some of these facilities provide a visual display outside the entrance to inform motorists when the garage is full as shown in Photo 6.4. The display is simply blank when the garage is not full and does not provide an indication of the number of available spaces. These signs are in use at the five locations shown in Figure 1. Several parking structure exit locations use illuminated signs and domed safety mirrors to warn pedestrians of vehicular traffic exiting the garage as shown in Photo 6.5.

ACHD has a long-range vision to install dynamic message signs along arterials into downtown to warn motorists of congestion or incidents. Similarly, Capital City Development Corporation, who operate the public parking garages in downtown, has long term plans to install message signs at the entry points to downtown indicating the availability of parking spaces in its various garages.

6.3 Conclusions and Moving Forward

The ITS infrastructure and activities in the Treasure Valley significantly effects downtown mobility. Enhanced signal operations will improve traffic flow and have a positive impact on congestion levels, particularly since peak traffic periods in downtown Boise are relatively short and the timing plans have not been updated in over ten years. Improved signal operations, and communications systems upgrades, will benefit mobility downtown. The projects ITS currently has planned and those that will develop in the future will need to be coordinated, which suggests review and updating of the existing planning and architecture documents. Since the existing TMC has reached its capacity, expanding the use of ITS to help address congestion and improve mobility in Boise will require a new approach and likely a new center altogether. These efforts will generate more detailed research and technical study, specific ITS projects and recommendations, as well as input into other transportation system management plans and project development.

These specific suggestions are offered to help enhance the system.

- Projects aimed at developing or upgrading signal timing plans in the study area should be supported and advanced. This effort is already close to implementation, however, this recommendation is important to ensure that it is kept as a priority. The sooner this work can move ahead, the sooner resulting improvements in congestion level and mobility will be realized.

The remaining improvement options extend beyond the downtown area, but would have a significant positive impact on improving the management of traffic in the study area.

- Efforts to enhance the communications infrastructure and connectivity with other agencies and the public should be pursued and implemented. These include partnerships between ITD, ACHD, Boise City and Ada

County including the law enforcement and emergency management entities. The benefits of these projects can extend beyond transportation to law enforcement, emergency management, and education. Opportunities for collaboration and partnerships in these projects should be pursued to maximize their cost effectiveness.

- The Treasure Valley ITS Plan and architecture should be reviewed and updated to reflect current conditions and needs.
- Development of a new and more advanced Transportation Management Center (TMC) should be advanced. As the transportation system in Boise becomes more congested better strategies for managing the system of signals, cameras, and emergency response will need to be implemented. Development of a larger TMC with greater capability and connectivity should be viewed as a high priority among these strategies.
- Development of a new TMC should maximize opportunities to integrate with other agencies. Achieving integration between ACHD, ITD, emergency services and other agencies and private sector partners should be a primary element of the development of a new TMC. This will require coordinated planning and architecture development to ensure appropriate and effective data sharing.
- Improved signing for the public parking garages could help motorist to find parking more easily. Enhanced signs could provide information regarding how many spaces are available or to what percentage the garage is full. In addition, signing at the various garages could also indicate which other garages have space available, and appropriately direct motorists in search of parking. This traveler information concept could effectively be taken a step further by providing parking information on dynamic message signs for people driving into the downtown, for instance on I-184.

Other improvements to the transportation system in the downtown area will also need to be coordinated with ITS infrastructure and capabilities. For instance, improvements to the transit system, including the addition of a downtown circulator system, have been proposed. Such an addition would need to be coordinated with traffic signal adjustments for safety and to permit the possibility of optimal effectiveness. This type of an improvement would need to include ITS at the planning phase to ensure enhancements to mobility that might be gained by one mode, area, or time frame without excessively hampering another.

In addition to ITS, there are a number of more traditional transportation engineering techniques that are used to maximize the efficiency of the circulation system. These techniques are known as Transportation System Management (TSM) measures. The transportation system management approach to congestion mitigation seeks to identify improvements to new and existing facilities of an operational nature, as opposed to major capacity increases such as new roads, major roadway widening, grade separations and other high-cost infrastructure improvements. These techniques are designed to improve traffic flow and safety through better management and operation of existing transportation facilities. They are normally applied where it would be difficult to obtain additional right-of-way for improvements, where environmental constraints might restrict major transportation system enhancements and in areas such as downtown Boise where the roadway system is essentially fixed due to the locations of buildings or historic structures. Transportation systems management strategies include spot intersection improvements, traffic signalization improvements, access/driveway control and management, use of one-way streets, special pedestrian or transit amenities and enhancements, parking management (especially during peak hours), focused bottleneck mitigation programs, and special events management strategies. These strategies are developed to reduce travel time and enhance system accessibility on the existing circulation system.

Intersection improvements, such as turning lanes, grade separations, pavement striping, signage and lighting, bus turnouts, and channelization of traffic, can sometimes greatly improve traffic flow operation on arterials and at intersections. Use of management techniques such as peak period parking prohibition, peak period truck parking enforcement, consolidation of driveways and peak hour turn restrictions can maximize the carrying capacity of arterial roadways. Traffic signal enhancements may include traditional measures such as fixed time signal optimization, signal equipment upgrades as well as more advanced techniques such as system interconnection and video detection, as described in this element. Removing freeway and arterial bottlenecks requires correcting problems, such as insufficient acceleration and deceleration lanes and ramps, sharp horizontal and vertical curves, narrow lanes and shoulders, inadequate signage and pavement striping, and other poor geometric characteristics. The identification and elimination of traffic bottlenecks can greatly improve traveling conditions and safety, especially during peak periods. TSM projects can complement the major capacity improvements and infrastructure by providing improved traffic flow on arterials and local streets.

ACHD has implemented many of the measures detailed above, however, additional TSM measures, in conjunction with advanced ITS strategies, would work together to maximize the carrying capacity of the existing roadway and transit systems. ITS alone is not the sole solution; many of the TSM techniques mentioned herein will necessarily need to be included in future improvement programs.

7. Freight

Across the nation, as in Idaho, mobility issues and transportation planning efforts usually focus on traffic and personal transportation. Day to day activities for most of the Treasure Valley community include travel to and from jobs, education, shopping, and local events. This travel usually means automobile use on public streets, which involves negotiating traffic and congestion that is increasing each year.

This chapter presents a summary and analysis of the freight activity in the Downtown Boise area and its impacts on mobility. Any discussion of freight movement in downtown Boise will necessarily focus on trucking activities, as there are no rail lines or other modes of freight movement penetrating the study area or directly impacting mobility. Trucking activity includes the movement of consumer goods and parcel deliveries, medical and service supply deliveries, commodity distribution, moving van shipments, garbage collection and a variety of other cargo transport.

Examining trucking activity for the Downtown Boise Mobility Study is important for three reasons:

1. Efficient movement of goods is important for a healthy economy.
2. Trucks and deliveries affect overall mobility in the downtown area.
3. Downtown businesses and merchants rely on predictable and reliable service deliveries.

Understanding how the current system of deliveries, routing, and infrastructure operate is important for planning the downtown transportation network. Trucks play a unique role in the transportation system given their operating characteristics, their need for temporary parking in close proximity to the businesses they serve, and their role in sustaining the downtown business community. This element represents a first look at trucks and their impact on the overall transportation network in downtown Boise.

Throughout the United States, significantly more traffic is moving over a highway system that has seen relatively little expansion in the past ten to twenty years. Furthermore, a relative increase in miles traveled by trucks has outstripped increases in passenger vehicle use. Idaho and Boise have not escaped these trends and are now feeling the impacts of the increase in truck traffic. Due to their size, their larger turn radii and their slow speed, freight trucks are major contributors to traffic congestion. They also often need to park on busy downtown streets for delivery purposes, which can be problematic.

This chapter is organized into the following sections:

7.1 Key Findings

7.2 Analysis of Current Conditions

7.3 Current Conditions of Truck-Related Infrastructure

7.4 Routes

7.5 Conclusions and Moving Forward

7.6 Case Studies

Please see also the following appendices:

Appendix E. Freight: Data Collection Notes

Appendix F. Freight: Photos of Interest

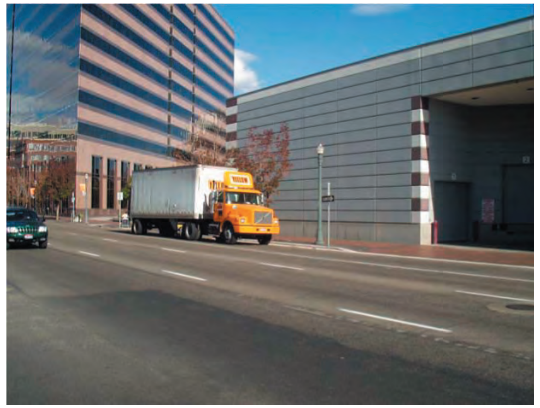


Photo 7.1 Truck on 9th at Plaza on the Grove

Photo 7.2 Parked delivery truck encroaching on travel lane on Idaho Street

7.1 Key Findings

Review of the data collected indicates that freight operations in downtown Boise currently coexist with all other traffic reasonably well and have a minimal impact on downtown mobility. Efforts to improve transportation operations, such as the proposed changes to the parking arrangements at 8th Street between Bannock and Main, and considerations relative to relocating the transit mall on Main and Idaho Streets, are underway. These efforts and others will need to continue in order to curb increases in congestion. Listed below are the key freight-related issues revealed by a brief investigation of the downtown area:

- **Large trucks, both moving and parked, exacerbate congestion and related safety issues.** While most of the delivery trucks are smaller, many trucks are tractor-trailer combinations and some of these pull multiple trailers. The large size of these vehicles simply necessitates that they occupy more space, which compounds their operational characteristics. These trucks are more likely to encroach on traffic lanes when parked at freight pullouts and loading docks and have greater difficulty using the alleys. If smaller vehicles could be substituted without necessarily generating additional truck traffic, a benefit may be realized.

- **Service deliveries to bars and restaurants account for a significant portion of the truck traffic and associated parking issues in the downtown area.** Many of the trucks parking on the streets, in the alleys, and in designated delivery parking provide food and beverage service to local bars and dining establishments. These types of businesses require frequent deliveries, often by a variety of vendors.

- **Trucks using the bus lanes on Idaho and Main Streets for deliveries generate conflicts with transit operations.** Delivery drivers sometimes park illegally in the bus lanes of the downtown transit mall preventing buses from accessing the assigned stops. While this problem is not frequent, it often forces bus passengers, some of whom have impaired abilities, to exit buses into the street. Although some transit personnel are authorized to issue citations, it is not their primary duty. Violators are frequently citied.

- **Parking enforcement as currently managed is not able to effectively control illegal truck parking in the downtown area.** Boise Parking Control's unofficial policy includes not citing delivery trucks that are double-parked. In addition, they are tasked with controlling a significant portion of the study area with just five people and are therefore generally unable to issue citations in a timely manner when a vehicle has been parked longer than the permitted duration. Policies try to balance the importance of deliveries to downtown businesses with citing illegally parked vehicles, but are not adequately preventing conflicts and hazardous situations. In addition, the number of personnel assigned to patrol parking for the downtown area is inadequate to effectively monitor all of the problem locations.

- **The freight pullouts are not large enough.** Trucks are too large to fit into the pullouts and encroach on active traffic lanes, creating a safety hazard, as shown in the photograph. Some vehicles marginally fit into the pullouts and also present a safety issue.

- **The freight pullouts are not being used efficiently.** Often the freight pullouts that do exist are being used by passenger automobiles so they are unavailable for trucks. They provide minimal benefit since they accommodate only one or two cars at best. When available, they provide an effective means of accommodating a single smaller delivery vehicle needing parking for a very short duration. The signing for the freight pullouts is inconsistent. Some pullouts are signed for delivery only with a time limit of 5 minutes, other pullouts allow private vehicles and longer durations.

- **Special event deliveries generate impacts by occupying lanes that could otherwise be used to move traffic.** Closures on major commuter thoroughfares such as 9th Street during peak periods currently generate some of the greatest delays. These closures are often poorly timed during peak hours. These closures also remain in place after the immediate loading and unloading activities have been completed. Future traffic growth will require the use of these lanes in order to maintain reasonable levels of service.

- **Alleyways throughout downtown represent a delivery asset that is currently not being used to its full potential.** Obstructions in the alleys prevent their use by delivery vehicles. These obstructions include trash dumpsters, private automobiles and other items. Removal of these obstructions would allow some of the delivery vehicles to operate, at least some of the time, off the streets.

7.2 Analysis of Current Conditions

The discussion of current conditions relative to truck movements in the downtown area is the result of interviews with various delivery businesses, the local garbage pickup manager and drivers, vendors, and businesses.

Vehicles being used in the area range in size from small delivery vans barely distinguishable from personal vehicles to tractor-trailer combinations requiring extra maneuvering space. The majority of the trucks, however, are double-axle delivery trucks in the two-to ten-ton range such as the one shown in Photo 7.3.

Depending on the delivery type, trucks may be parked for a very short duration of two to five minutes. In some cases, a truck may park for several hours. The very brief stops are often for small parcel delivery or pick-up by companies such as United Parcel Service or Federal Express. Food and beverage deliveries typically involve a longer time frame on the order of twenty to thirty minutes. These deliveries often require multiple trips between the vehicle and the business with a hand truck, and sometimes include visits to more than one business during a given stop.

Some deliveries require much longer layovers and may create traffic impacts. This category includes furniture moving vans typically serving residential units and offices; trucks providing services to downtown events such as concerts, conventions and trade shows; and trucks involved in downtown construction projects, as shown in Photo 7.4. In addition to the longer duration of the associated traffic impacts, the trucks associated with these deliveries are frequently larger and require more space on the street. These larger vehicles also have operational characteristics, such as larger turning radii and potentially slower speeds, which can contribute to conflicts and even crashes with other vehicles or stationary objects.

Often at construction sites the developer obtains permission to close a traffic lane adjacent to the construction site for an extended duration, sometimes for the entire project duration.

Photo 7.3 Typical Delivery Truck on Idaho Street

Photo 7.4 Construction delivery truck partially blocking travel lane on 13th Street


Photo 7.5 Off street loading, WINCO Foods


Photo 7.6   Loading docks with street impacts, Base Centre on the Grove

The relative impacts of these various types of truck related activities depend largely on their frequency. Construction activities are generally infrequent even though they can entail closures for significant durations. Also, moving vans and similar longer duration deliveries are, in general, less frequent than shorter duration deliveries such as parcel services and even food and beverage deliveries. Many of those contacted indicated that a vast majority of the food and beverage deliveries take place on Tuesdays and Fridays.

Parking ordinances that have the most impact on truck operations in the downtown area prohibit double parking, parking in fire lanes, crosswalks, intersections, or any other traffic-obstructing manner. The ordinances also control parking in alleys, loading zones, and residential districts. Boise City Parking Control enforces the ordinances, but must strike a balance between alleviating congestion on the one hand and accommodating business delivery needs on the other. Availability of staff resources also limits their effectiveness.

Of particular interest is Boise Municipal Code Section 10-11-06 Parking In Alleys, which states:

No person shall park a vehicle within an alley, except while actively engaged in the expeditious loading and unloading of passengers, supplies and merchandise. In no case shall the stop for loading and unloading exceed thirty (30) minutes.

Due to the ease with which a person parking a vehicle in an alley can qualify for the exception regarding loading and unloading of passengers, supplies and merchandise, the alleys are often blocked by private vehicles. There are some indications that this problem stems primarily from business owners themselves parking in the alleys. This essentially prevents their use for commercial trucks making legitimate deliveries.

7.3 Current Conditions of Truck-Related Infrastructure

The study team evaluated the infrastructure supporting freight delivery activities in downtown. The location of these facilities dictates how deliveries are made to certain destinations and therefore, how the impacts to traffic, if any, manifest themselves. Often infrastructure that is not intended solely for freight delivery is adopted out of necessity by trucks. These elements, however, play an important part in the makeup of freight issues in downtown Boise.

As data was collected regarding trucking in the study area, it became evident that some of the more challenging issues regarding freight mobility arise in the core of downtown. This area, shown in Figure 7.1, has a high concentration of delivery intensive businesses and truck accommodation infrastructure.

LOADING DOCKS

Many larger businesses in the study area have loading docks that allow trucks to park for deliveries entirely off the street as shown in Photo 7.5. Some, however, are sized such that trucks backed up to the dock, especially larger trucks, encroach into a traffic lane as with those shown in Photo 7.6. At some docks only brief interruptions of traffic occur while a truck is maneuvering to access the dock and once the vehicle is fully parked the street is clear.

DELIVERY LANES & PULLOUTS

The delivery lanes shown in Figure 7.1 are locations where existing pavement striping allows easy closure of a lane with minimal impact to traffic either through use of traffic control devices or the presence of a truck. These lanes have been striped in this manner to accommodate locations where delivery vehicles frequently stop. The delivery lane location on 9th Street serves the Boise Centre on the Grove, the larger of the two on Capitol serves the Grove Hotel, and beverage and package delivery vehicles frequently use the smaller one in the center between Idaho and Bannock.

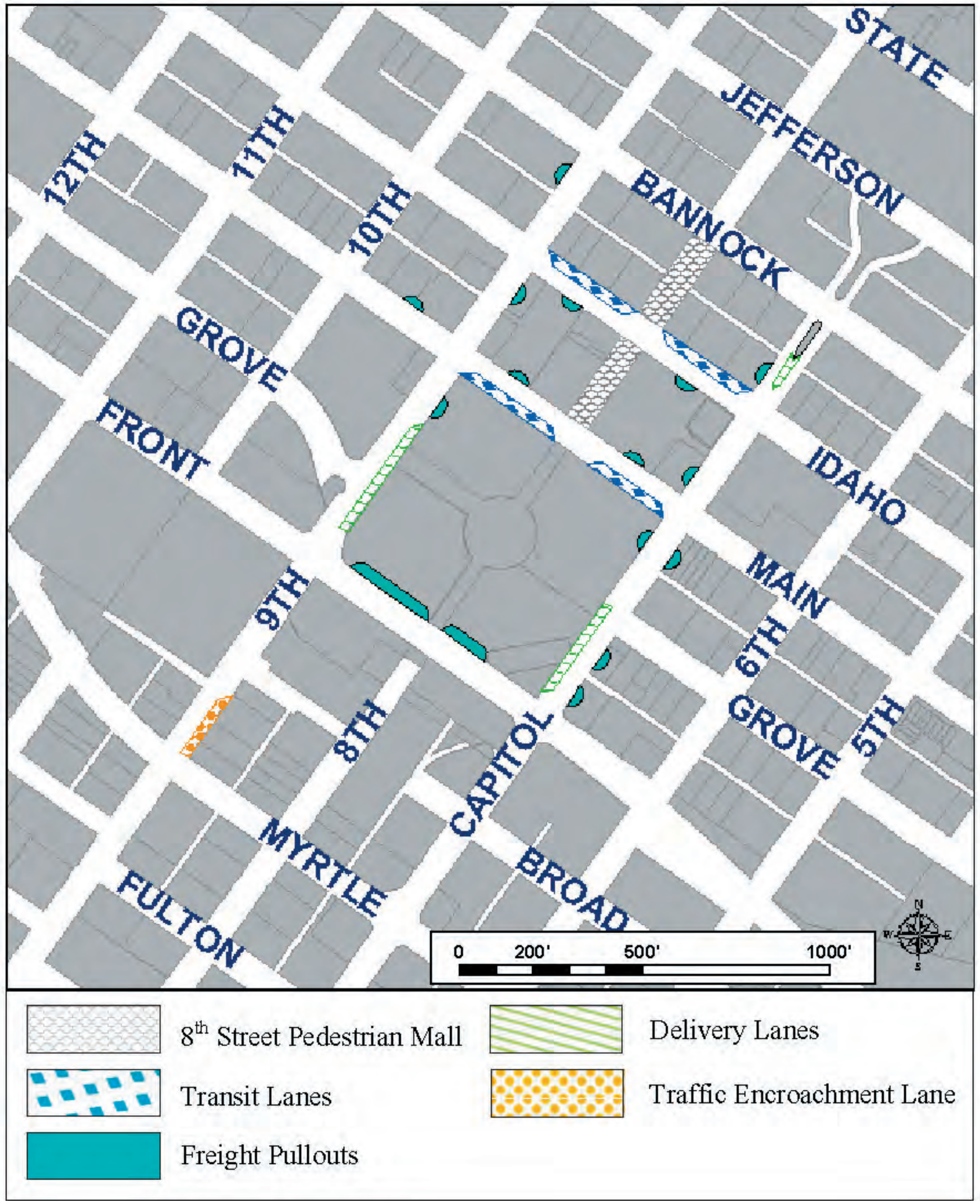


Figure 7.1 Downtown Critical Delivery Zones

Photo 7.7 Narrow truck pullout, Front Street

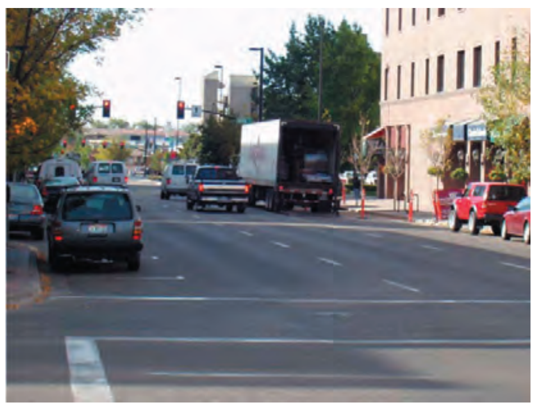


Photo 7.8 Truck Parked in traffic on 9th Street

Many of the freight pullouts shown in Figure 7.1 are signed specifically for delivery activities, however, some are available for private parking and are equipped with meters. According to several of the vendors that deliver in the area, private vehicles frequently occupy the pullouts that are signed for delivery only and, therefore, the availability of these pullouts is not reliable.

It was also noted that the pullouts are not sized to accommodate larger trucks. As shown on Photo 7.2, some trucks cannot fit into the pullouts without encroaching on the adjacent traffic lane. This type of encroachment is often considered more likely to result in a crash than blocking the entire lane, as approaching traffic is encouraged to swerve slightly into the adjacent lane.

Sometimes trucks fit marginally into the pullouts as shown in Photo 7.7. This situation can also present a hazard as it allows little space for error on the part of moving traffic and can be particularly dangerous for cyclists and pedestrians.

The traffic encroachment lane shown on Figure 7.1 is associated with event related deliveries to the Big Easy Concert House. On event dates this lane is often closed during peak evening traffic times, which sometimes causes erratic driver behavior. These closures also often extend after dark, further complicating the situation. In addition to the identified delivery lanes and traffic encroachment lane, trucks often need to park on the street in a traffic lane.

This can occur on virtually any street with concentrations being greater, of course, where the density of businesses is higher. This practice also sometimes involves double-parking. Photo 7.8 on Page 8 shows a relatively common occurrence of a parked truck blocking a traffic lane. While this photo was taken during an offpeak time period with little traffic effect, congestion can be significantly increased when through lanes are blocked during peak periods.

8TH STREET DELIVERY ZONE

Eighth between Bannock and Main, as shown on page X has a high density of businesses that receive deliveries frequently from a variety of vendors. Congestion in this area not only makes delivery parking difficult but also presents concerns regarding emergency vehicle access. Eighth Street currently has some special regulations. The parking is managed and enforced cooperatively by CCDC and Boise City Parking Control. Parking regulations on 8th Street currently allow delivery parking by permit on the southeast side of the street and private vehicle parking on the northwest side. According to CCDC, there are currently approximately 30 permit holders for this delivery parking. These annual permits allow 30 minutes of parking per visit during which time the driver is required to remain nearby in case emergency vehicles, fire trucks in particular, need access. When personal vehicles are parked in the delivery parking area, emergency vehicle access to the curb can be partially or totally blocked. CCDC also issues temporary permits for deliveries or pick ups that are infrequent such as relocation or furniture delivery activities.

CCDC is proposing changes to 8th Street to create a defined fire lane to ensure emergency vehicle access. These changes would prohibit truck parking on 8th Street between Bannock and Main and allow metered private vehicle parking on the southeast side only. The northwest side would be striped and signed as a fire lane with no parking permitted at any time. In addition, as part of this proposal, delivery trucks would be allowed to park in the transit lanes on Idaho and Main between Capitol and 9th Streets. The 8th Street Mall and the transit lanes are shown on the map in Figure 7.1. The transit lanes are currently occasionally used illegally by trucks, which presents a conflict with bus activity. While some transit personnel are authorized to issue citations to these illegally parked vehicles, this does not adequately control the problem. Consideration is currently being given to relocating the transit mall to help alleviate congestion in the area, which may have the added benefit of providing some delivery parking options.

ALLEYWAYS

Delivery vehicles often use the alleyways to access various businesses. The alleys, however, are narrow and frequently obstructed to some degree by garbage dumpsters or other obstacles. Many of the vendors that were interviewed indicated that private vehicles are often parked in the alleys as well. Some indicate that these vehicles often belong to the business owners and managers.

While there was a suspicion that the current layout of one-way streets might have a negative influence on the circulation of traffic and trucks, no such comments were made by those interviewed. However, this assessment did not involve a detailed traffic study.

PAVEMENT CONDITION

Typically, the primary impact of truck traffic on infrastructure is wear and tear on pavement. To monitor pavement conditions throughout the county, ACHD maintains a pavement management system. The data in this system was reviewed for the study area in an attempt to assess the impacts of trucks on the pavements. The data shows 128 street segments in the study area, each of which averages just less than three blocks in length. Eighty-seven of these segments regularly accommodate truck traffic and six are noted with extensive wear and damage. In addition, the average pavement rating for all of the segments is 80 on a scale of 1 to 100, with 1 being the worst possible condition and 100 being the best. These indicators seem to show that the impacts on pavement in downtown Boise are not currently problematic and that no correlation between truck traffic and pavement condition is currently present. However, it is important to note that this preliminary finding is not based on truck volume or weight data, which would result in a much more accurate correlation of pavement condition to truck impacts.

WEAR AND TEAR ON STREETSCAPE

One final issue explored relative to infrastructure was the impact of trucks on stationary streetscape objects such as trees, light poles, or traffic signals. Discussion with ACHD personnel indicated that they respond to about one incident per month where they are required to adjust and/or repair pedestrian signal heads or signal poles after an impact by a truck. These incidents usually require signal head adjustment, repair, or parts replacement and only rarely require total replacement of the equipment. On some occasions they relocate a pedestrian signal pole to alleviate a recurring problem. These incidents are rare and minor in the downtown area by comparison to other areas in Boise.

Contact with the City of Boise similarly revealed only minor and infrequent problems related to truck impacts on trees. The city tries to keep trees trimmed to maintain a clearance of 14 feet. Issues typically involve some cleanup of limbs that have been knocked down and minor trimming of the tree.

1 Albertsons Grocery	12 Saint Lukes Hospital Warehouse
2 Meadow Gold Truck Maintenance Facility	13 Downtown Storage Center
3 Meadow Gold Production Facility	14 The Big Easy Concert House
4 Meadow Gold Trailer Storage Facility	15 8th Street Marketplace
5 Boise Cold Storage	16 BSU Bookstore Receiving
6 8th Street Mall	17 WINCO Grocery
7 8th Street Mall	18 GI Trucking
8 Boise Centre on the Grove	19 SAIA Trucking
9 The Grove Hotel	20 BSU Student Union
10 The Basque Block	21 13th Street Post Office
11 Saint Lukes Hospital	22 Graybar Electric

Figure 7.2 Delivery destinations & freight terminals

7.4 Routes

Trucks pick up and deliver goods in the downtown area throughout the business week and, to a lesser extent, on weekends. While truck traffic is more concentrated in the commercial zones, it is present throughout the study area. Many of the larger trucks that come into downtown do so during the night or very early hours of the morning. The major origins and destinations within the study area are shown in Figure 7.2.

The truck volumes at each of these locations range from less than one truck per week to approximately 70 trucks per day at the Meadow Gold Dairy facilities. The majority of these truck trip generators are responsible for approximately eight to ten trucks per day.

Currently no streets have been designated as truck routes in Boise. An effort is underway by ACHD to designate truck routes and the proposed routes are shown in Figure 7.3. The proposed truck route system will not prohibit trucks from using the necessary streets to access delivery destinations, however "through" truck traffic will be required to use the truck routes.

Through truck movements are those that pass through without stopping to make a delivery or pickup along the direct travel route. Through trucks currently remain on those routes that provide more expedient and free flowing movement. These routes are the same ones that generally provide access into and out of the downtown area and are listed below:

- Broadway Avenue
- Interstate 184 (the Connector)
- Myrtle and Front
- Main and Fairview
- Capitol and 9th
- State Street

Because it is utilizing the same main routes that trucks already use when not directly accessing a business for delivery, the proposed truck route system will likely have a relatively minor impact on the downtown area. The truck route system will, however, offer some additional assistance to efforts to control non-local truck movements.

Figure 7.3 Proposed routes through downtown

7.5 Conclusions and Moving Forward

Additional research and technical studies are required to provide more detailed and specific recommendations regarding freight and goods movement. However, this chapter provides initial recommendations, that may be used to guide on-going planning activities. Based on the results of this study, it has been determined that freight movement, while an important issue, is not the subject of widespread concern for Boise in terms of the efficiency of the transportation system.

The following are special issues to review:
- Truck parking
- Alley deliveries
- Special event truck staging

Although truck movements and parking are not currently anticipated, to create major impacts on the transportation system, future planning for freight movement is desirable. It will help identify problems as they arise and ensure that trucking activities do not result in significant impacts on the transportation system.

RECOMMENDATIONS

Recommendations aimed at managing truck related congestion are offered below:

- The proposed truck route system should be reviewed, finalized and implemented. This is an excellent and accepted method of controlling truck traffic in urban areas. Truck drivers widely understand that most urbanized areas have some restrictions on truck traffic and know to look for truck routes. The efforts of ACHD in this regard have paved the way for the implementation of a route system by coordinating with local planning agencies and the Idaho Trucking Association.
- For trucks operating off the truck route system (once it is implemented) restrictions should be imposed as to the hours of operation and the size of trucks used for downtown deliveries. This approach would allow larger trucks only during nighttime or early morning hours and would limit delivery vehicles to specific hours that avoid peak times. Coordination of special event deliveries would be more effective with these restrictions in place to allow enforcement if necessary. Exceptions could be allowed by special permit.
- Proposed changes to 8th Street between Bannock and Main should be coordinated with changes to the transit mall and associated transit operations to effectively and cooperatively use the available space. Delivery zones on 8th Street should be eliminated only after alternative zones have been established, presumably on Main and Idaho Streets if the transit mall is relocated. The existing lanes on Main and Idaho, currently used as bus lanes, should be used to accommodate both drop and go bus stops and deliveries in separate, designated sections.
- Enforcement efforts should be increased to enhance the effectiveness of existing and newly implemented truck restrictions and parking ordinances. Much of the truck related congestion currently impacting traffic stems from parking infractions. Additionally, any new restrictions put in place to control truck movements will only be effective if they are adequately enforced.
- The freight pullouts in the downtown core should be managed to the extent possible to maximize their effectiveness for deliveries. They could be signed to only allow delivery and pick up stops and for appropriate vehicle size. If these pullouts are used by delivery vehicles, which typically stop for a short duration, the anticipated high rate of turnover for these spaces will accommodate more deliveries. This will remove a significant number of trucks from on street and double-parking. In addition, these pullouts could be enlarged to accommodate wider trucks, such as the one shown in Photo 7.2.
- Boise Municipal Code Section 10-11-06 - Parking In Alleys should be strengthened to more effectively prohibit non-delivery parking. The code should be coupled with more

rigorous parking enforcement. Together these strategies would allow more trucks to effectively use the alleyways for delivery and reduce on-street and double-parking. This approach might also require coordination with business owners to help them understand and respond to the needs of the community regarding the use of the alleys.

- On-street truck parking associated with special events should be timed so that lanes are open for traffic during peak periods. ACHD and Boise Police should work with event sponsors at the Boise Centre on the Grove, the Grove Hotel, and the Big Easy Concert House, as well as any other businesses that wish to use travel lanes for special event loading and unloading, to avoid lane closures during the morning and afternoon peak traffic times.
- COMPASS, ACHD, Boise City and ValleyRide should continue to consider freight movement planning when conducting on-going transportation planning efforts. Planning efforts may include conducting truck traffic counts at key locations as needed to gain an understanding of the level of truck traffic at critical locations throughout downtown, and requiring truck trip generation estimates for all project level studies of commercial and industrial development projects. In addition, commercial and industrial development projects should be carefully reviewed to ensure that sufficient off-street loading areas for truck staging are provided.

7.6 Case Studies

While contacting all of the businesses in the study area was not within the scope of this effort, numerous businesses were contacted, including several vendors and distributors that deliver to these businesses. This was done to gain an understanding of the level of truck activity and to determine problem areas. Several examples of the information collected during these interviews are provided below.

MEADOW GOLD DAIRY

This is the largest trucking operation in the study area, with 20 tanker trucks coming in per day. These trucks deliver raw milk for processing. They start arriving at about 2:00 am and continue throughout the day. As the trucks arrive, a queue often forms and they line up in the alley across 13th Street between Bannock and Idaho. Approximately 17 to 22 large trailers are loaded per day and shuttled to the staging facility at 17th and Shoreline. These trailers are later picked up by either Meadow Gold drivers or by a large grocery store customer such as Wal-Mart or Albertson's for delivery. Meadow Gold also loads smaller trucks at the 13th and Bannock facility for local distribution. The loading and departure activities take place during the night and are generally complete by 6:00 am. Local delivery accounts for about 60% of their outgoing product.

Many of the Meadow Gold trucks need to make a right turn at 15th and Bannock. Bannock was changed from a one-way street to a two way street several years ago making the right turn more difficult. Crashes have been reported at this location when trucks hit parked cars while executing this right turn. The Meadow Gold contact indicated that they would like to see a single parking space removed on the south side of Bannock just east of 15th.

This situation results in an informal recommendation as follows: When conflicts between trucks and vehicles, parked vehicles in particular, occur the location should be reviewed for similar incidents and problem areas should be addressed.

One such location that is the south side of Bannock Street immediately east of 15th Street.

BOISE STATE UNIVERSITY

Boise State University (BSU) has two facilities off campus that receive much of the incoming freight. One is located on Federal Way and the other is in the downtown study area at 200 Broad Street. These facilities unload larger shipments and transport them to the University by small trucks or panel vans. The Broad Street facility usually receives just one or two trucks per week, however, during their peak activity times of year, which occur in August and December, just prior to the beginning of the fall and spring semesters, they receive one or two trucks per day. These are typically tractor-trailer combinations. These vehicles encroach on Broad Street while parked for unloading. In addition, a relatively new bus route on Broad Street and on-street parking generate some conflicts for these deliveries.

The University also receives food service deliveries by truck to various locations on campus, primarily the student union where there is an off street loading dock. They average one truck per day either from local distributors in the form of a delivery truck or sometimes via a tractor semitrailer combination. The only problem area from the University's standpoint is construction related truck traffic. This traffic, however, is associated with campus construction, which is ongoing and will likely continue for several years.

ENTERTAINMENT VENUES

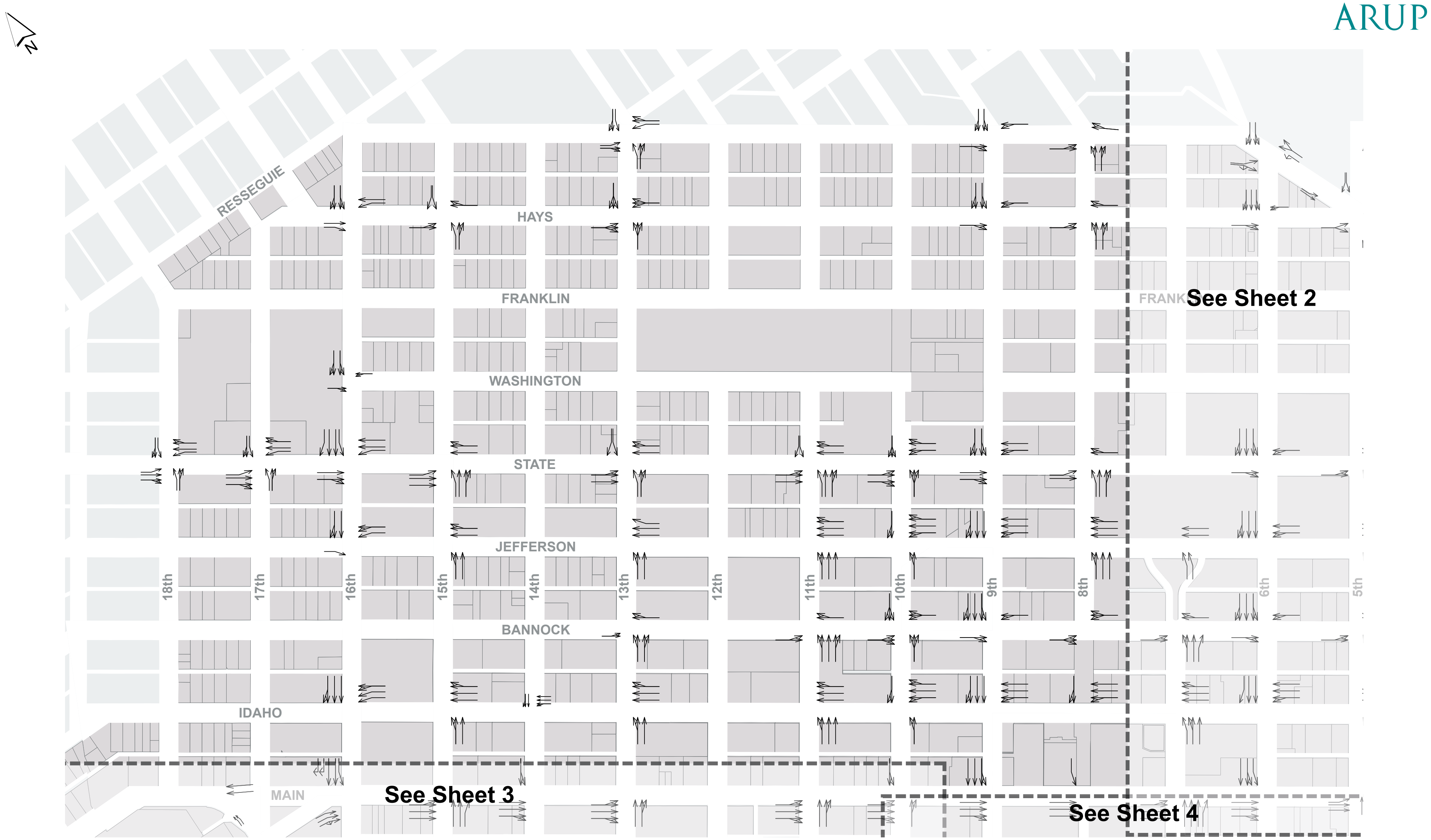
Lt. Kerns, Special Events Coordinator at the Boise Police Dept. indicated that there are three locations where trucks associated with special events impact traffic. They are the Boise Centre on the Grove, the Big Easy Concert House, and the Basque Block. Lt. Kerns indicated that the Big Easy and the Centre on the Grove both have standing permits to close lanes of traffic at their discretion for truck and bus parking associated with special events. Both are located on 9th Street, which is one-way southbound, and use the extreme left lane for deliveries. This lane begins just south of Main Street and past the parking spaces very close to the intersection. In 2002, a traffic lane was added on 9th Street between Grove and Front streets to reduce the impact of closing the far left lane for deliveries to Boise Centre. Because of this, through traffic on 9th Street can generally proceed uninterrupted through to Front Street.

The Big Easy Concert House, however, is located two blocks further south than the Front Street intersection. Closures associated with events at the Big Easy create a greater disruption to traffic because this in an active traffic lane upstream of the closure.
The Big Easy Concert House has one or two concerts each week while the Boise Centre on the Grove has more sporadic events and associated closures. The Basque Block also has sporadic special events requiring closure of Grove Street between 6th and 7th Streets for which they obtain an individual event citizen use permit. These events and closures often involve truck parking and can disrupt traffic flow in the area.

The contact at the Boise Centre on the Grove provided some insight regarding the truck related issues on 9th Street associated with events. The worst problem that they experience is backing up to the docks. Due to the geometry of the loading area trucks frequently have to make several attempts to line up to the appropriate dock while holding up traffic on 9th Street. There were no indications that drivers encounter problems getting to the Centre. Drivers approach the Centre on the connector or Broadway and do not express concerns with access. The Centre typically hosts one to two events per month where they have to use the delivery lane on 9th Street. They have slightly more activity in January and October and somewhat less in July and August. There is one event each year in March, the Flower and Garden Show, where they have to close a second lane in addition to the delivery lane closest to the docks. He indicated that they do not have a standing permit to implement closures, but that he calls Ada County Highway District (ACHD) when they want to use a lane to get an approval. This likely represents a minor misunderstanding by either persons at the Boise Centre on the Grove or Lt. Kerns regarding the permit arrangement.

Appendix

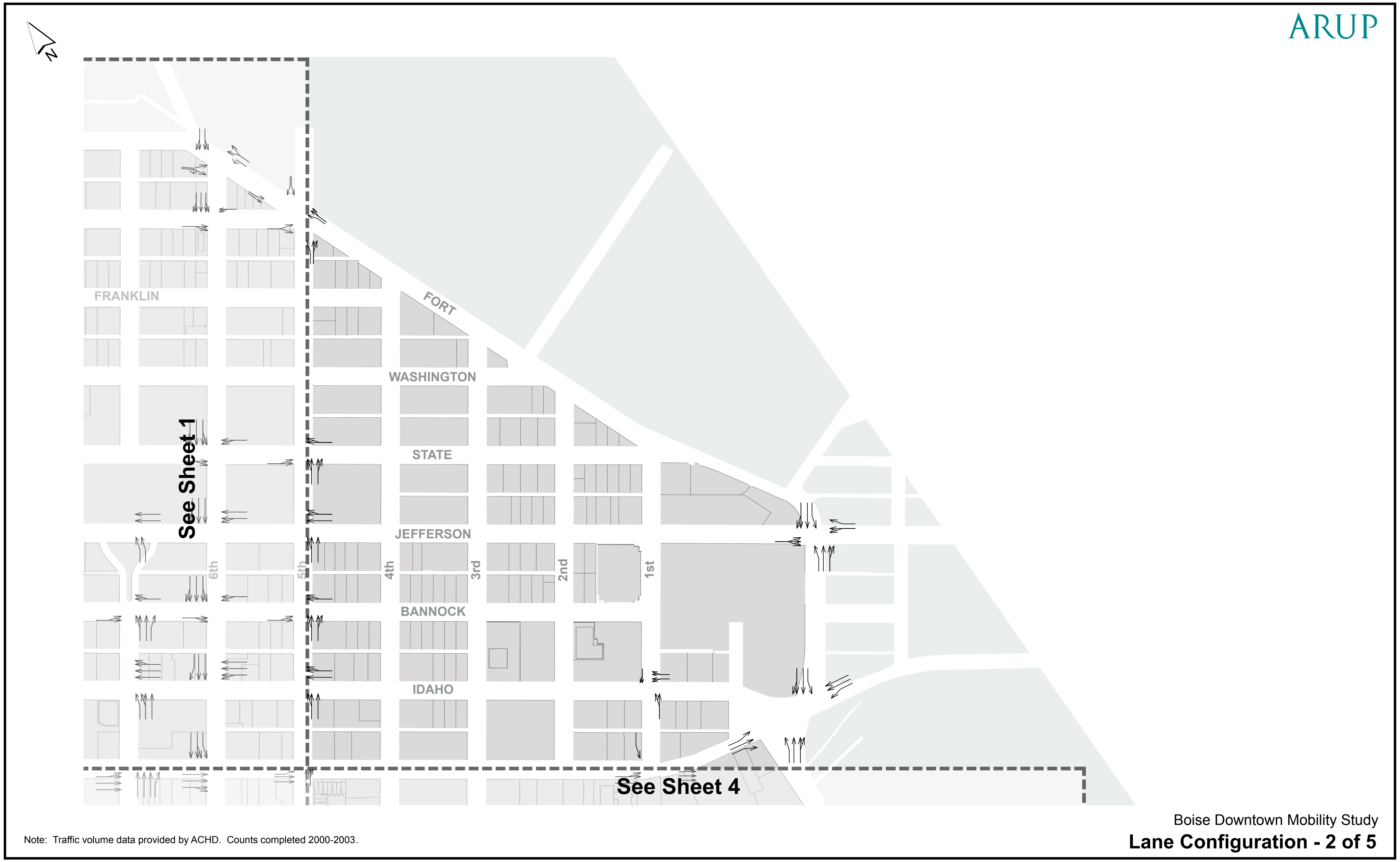
Appendix A. Automobiles: Existing Lane Configuration



Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

Boise Downtown Mobility Study

Lane Configuration - 1 of 5

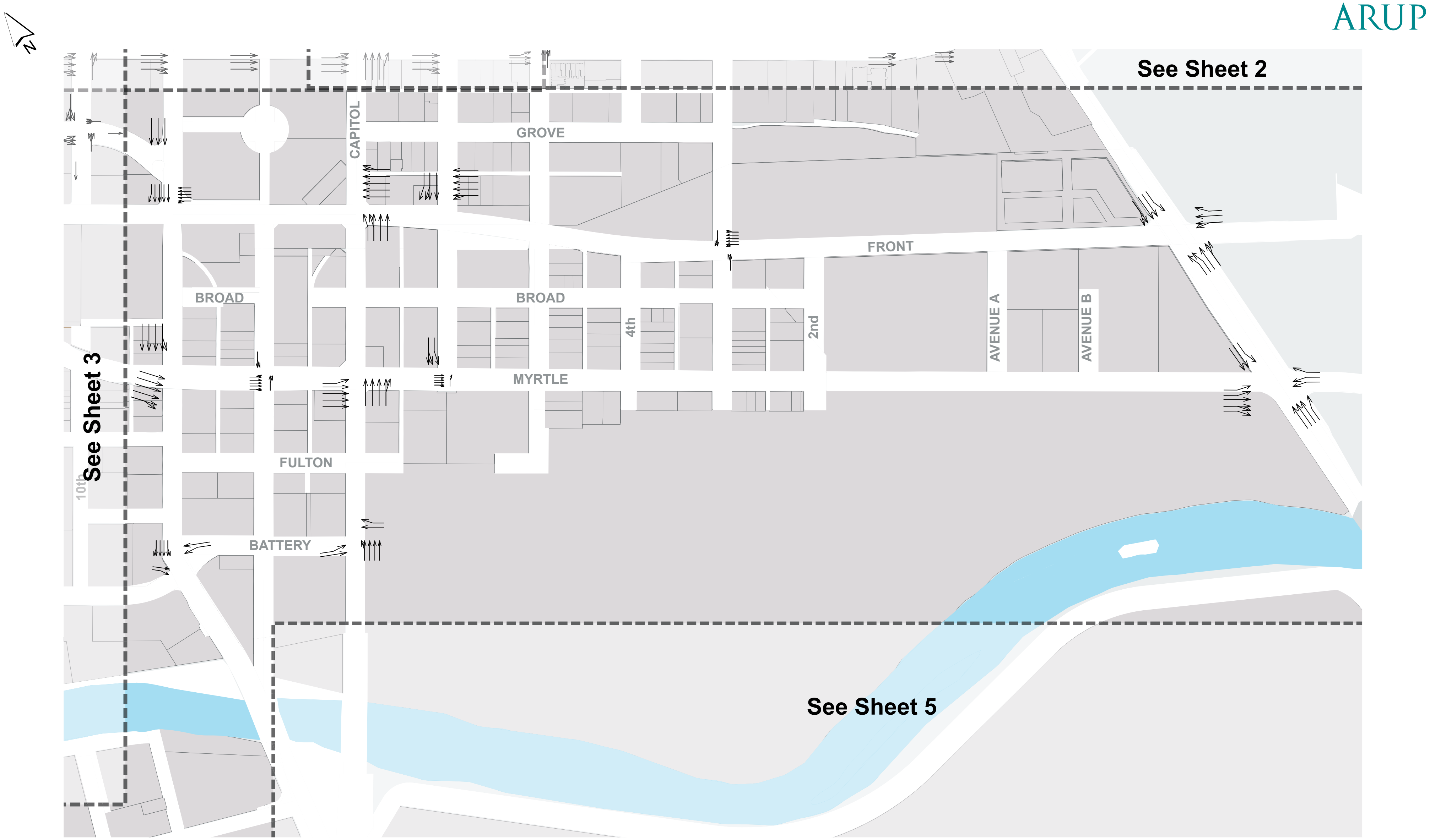

ARUP
FRANKLIN
FORT
WASHINGTON
STATE
JEFFERSON
BANNOCK
IDAHO
6th
5th
4th
3rd
2nd
1st
See Sheet 1
See Sheet 4
Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.
Boise Downtown Mobility Study
Lane Configuration - 2 of 5

Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

Boise Downtown Mobility Study

Lane Configuration - 3 of 5

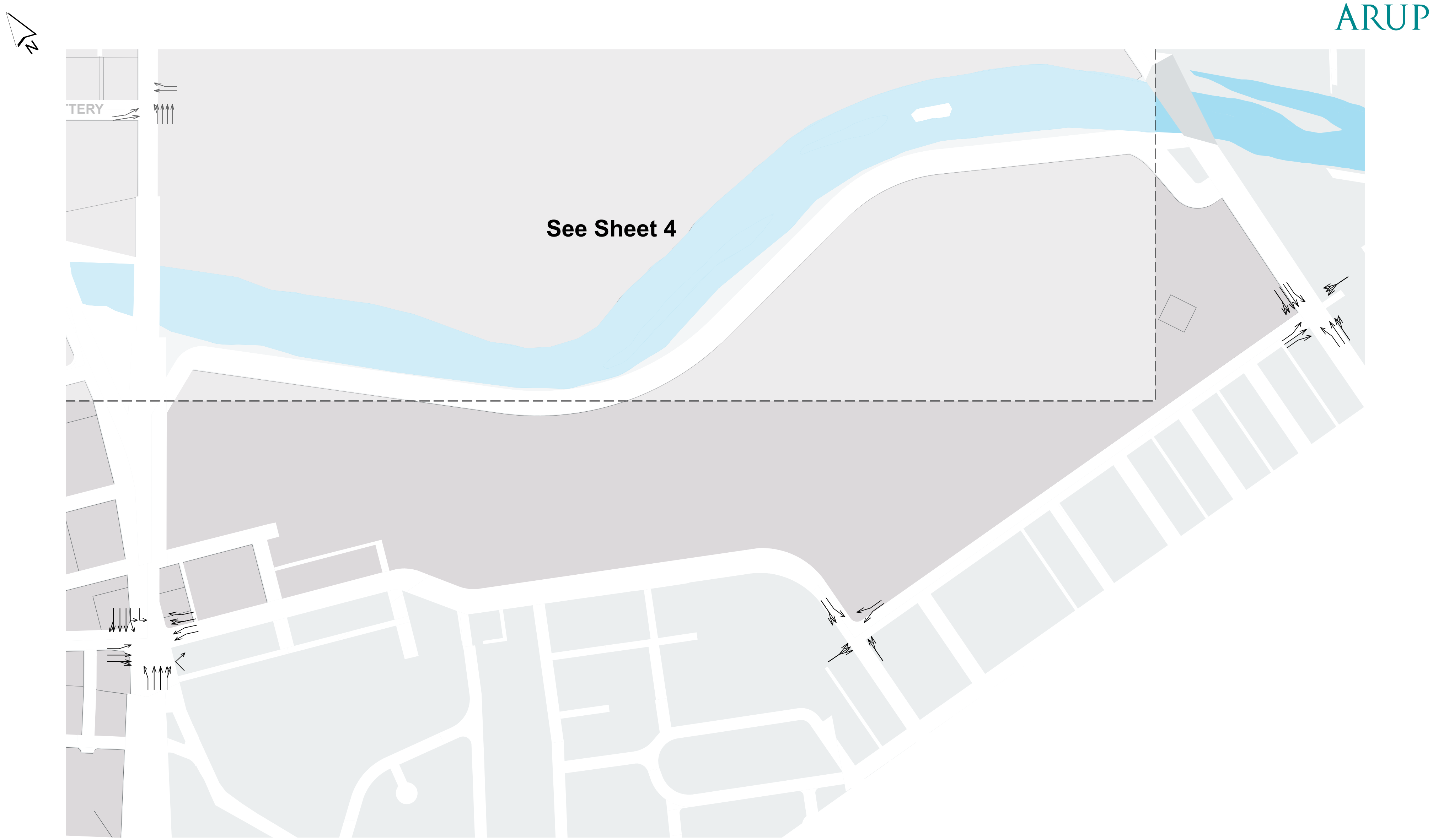
Appendix



Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

Boise Downtown Mobility Study

Lane Configuration - 4 of 5

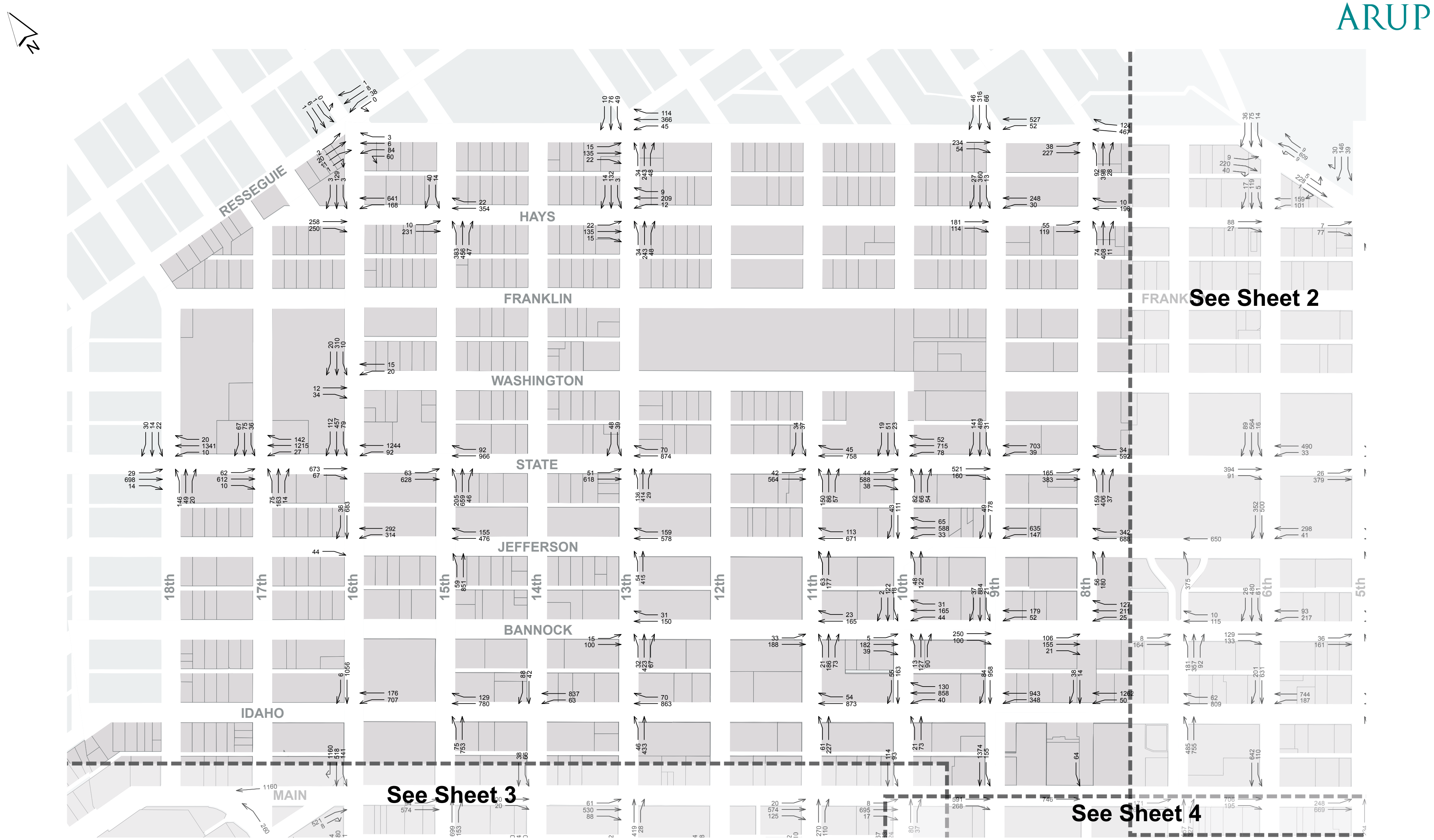


Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

Boise Downtown Mobility Study

Lane Configuration - 5 of 5

Appendix B. Automobiles: Existing PM Peak Hour Intersection Turning Movement Counts



Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

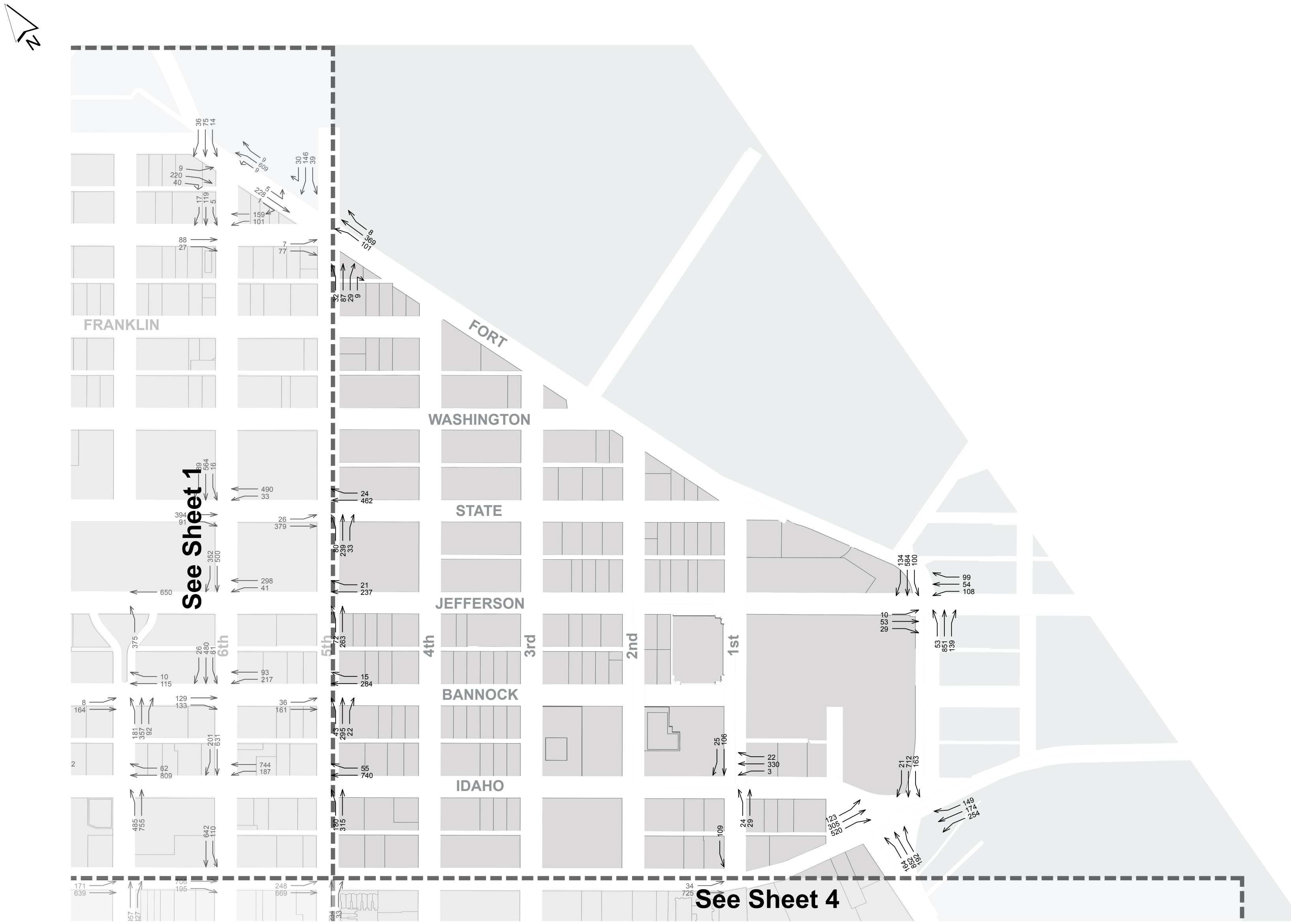
Boise Downtown Mobility Study

Existing PM Peak Hour Intersection Turning Movement Counts - 1 of 5

Appendix

B-3

ARUP



Boise Downtown Mobility Study

Existing PM Peak Hour Intersection Turning Movement Counts - 2 of 5

Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

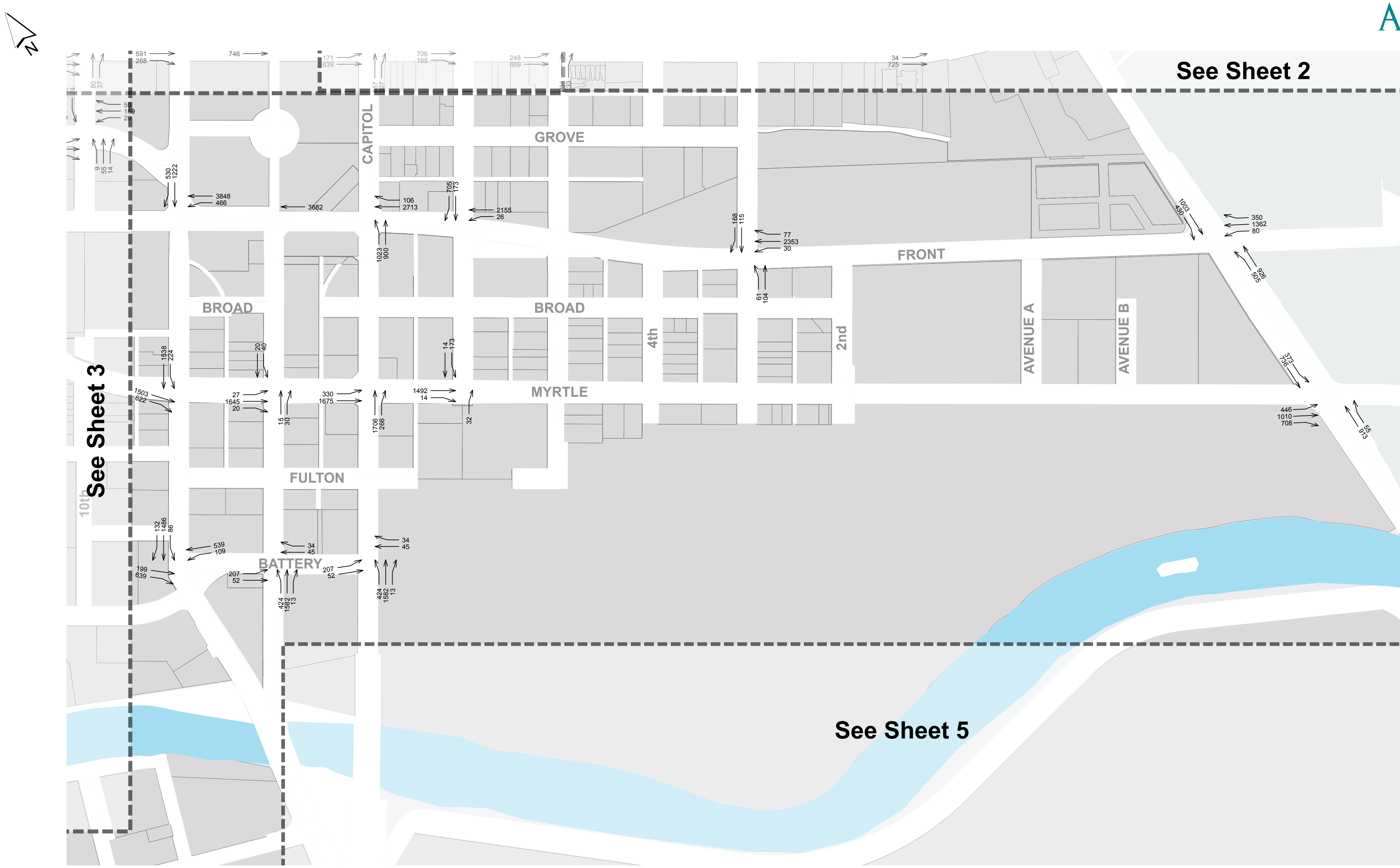
ARUP

Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

Boise Downtown Mobility Study

Existing PM Peak Hour Intersection Turning Movement Counts - 3 of 5

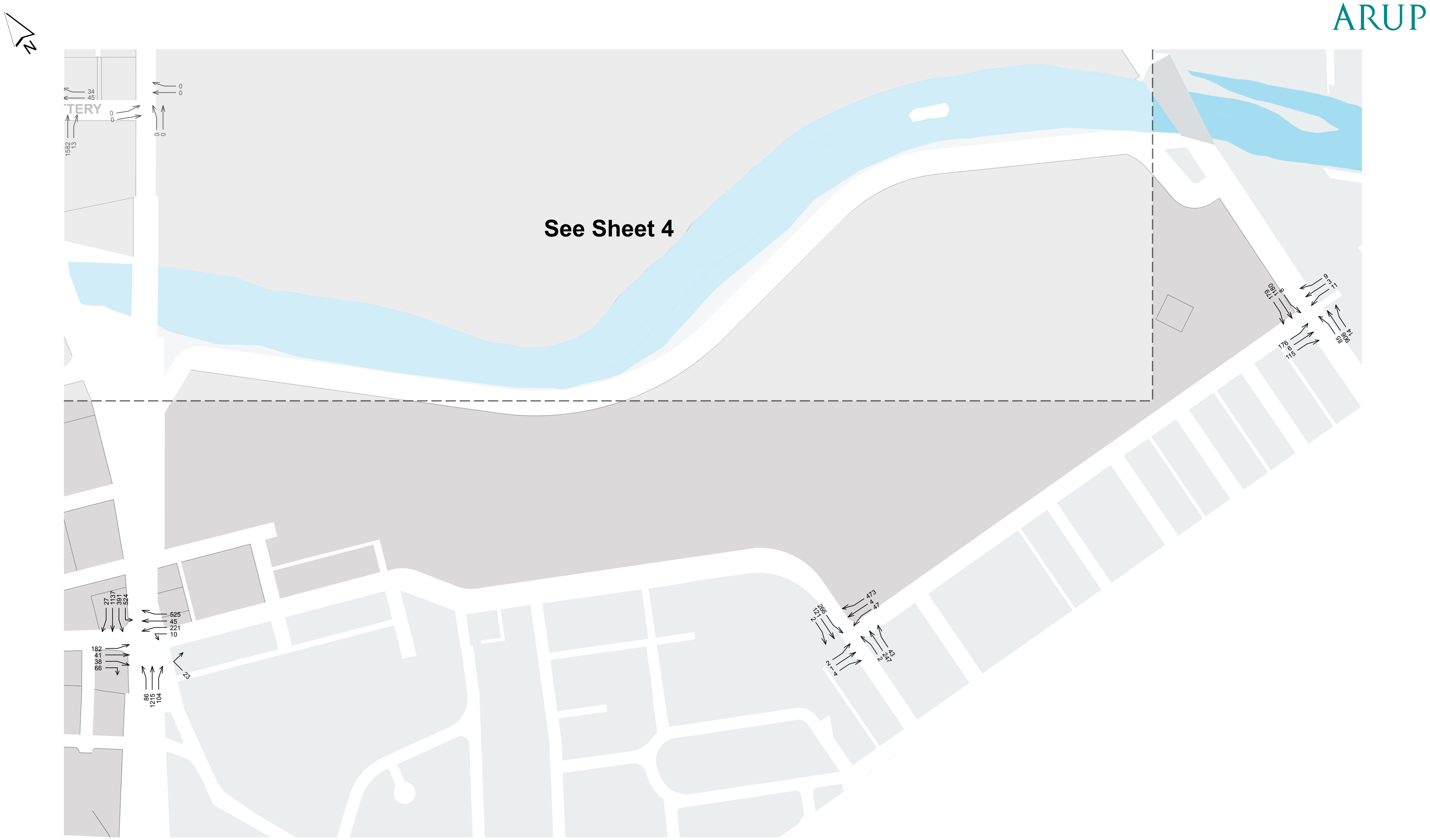
ARUP



Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

Boise Downtown Mobility Study

Existing PM Peak Hour Intersection Turning Movement Counts - 4 of 5



Note: Traffic volume data provided by ACHD. Counts completed 2000-2003.

Boise Downtown Mobility Study

Existing PM Peak Hour Intersection Turning Movement Counts - 5 of 5

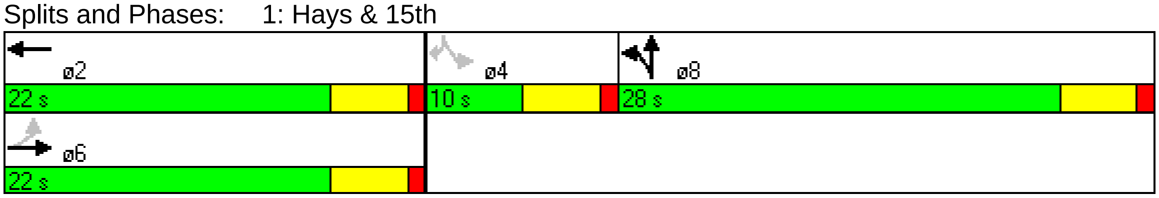
Appendix C. Automobiles: Capacity Analysis Output Reports
(available upon request)

Appendix C - Capacity Analysis Output Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1859	0	0	1848	0	1770	1775	0	1711	0	1583
Flt Permitted		0.978					0.950			0.571		
Satd. Flow (perm)	0	1822	0	0	1848	0	1770	1775	0	1028	0	1583
Satd. Flow (RTOR)					5			11				44
Volume (vph)	10	231	0	0	354	22	383	456	47	14	0	40
Lane Group Flow (vph)	0	268	0	0	417	0	426	559	0	16	0	44
Turn Type	Perm						Split			custom		custom
Protected Phases		6			2		8	8				
Permitted Phases	6									4		4
Total Split (s)	22.0	22.0	0.0	0.0	22.0	0.0	28.0	28.0	0.0	10.0	0.0	10.0
Act Effct Green (s)		19.0			19.0		25.0	25.0		7.0		7.0
Actuated g/C Ratio		0.32			0.32		0.42	0.42		0.12		0.12
v/c Ratio		0.46			0.71		0.58	0.75		0.13		0.20
Uniform Delay, d1		16.4			17.8		13.4	14.5		23.8		0.0
Delay		17.0			13.0		7.4	9.9		24.4		9.3
LOS		B			B		A	A		C		A
Approach Delay		17.0			13.0			8.9			13.4	
Approach LOS		B			B			A			B	

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 59 (98%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 59.1% ICU Level of Service A

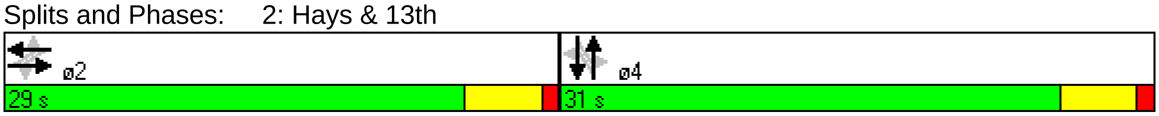
Splits and Phases: 1: Hays & 15th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1829	0	0	1848	0	0	1955	0	0	1959	0
Flt Permitted		0.973			0.982			0.930			0.994	
Satd. Flow (perm)	0	1785	0	0	1820	0	0	1833	0	0	1949	0
Satd. Flow (RTOR)		14			4			7			12	
Volume (vph)	17	200	28	12	209	9	64	309	23	3	132	14
Lane Group Flow (vph)	0	272	0	0	255	0	0	440	0	0	166	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Total Split (s)	29.0	29.0	0.0	29.0	29.0	0.0	31.0	31.0	0.0	31.0	31.0	0.0
Act Effct Green (s)		26.0			26.0			28.0			28.0	
Actuated g/C Ratio		0.43			0.43			0.47			0.47	
v/c Ratio		0.35			0.32			0.51			0.18	
Uniform Delay, d1		10.7			11.0			11.0			8.6	
Delay		23.3			5.6			5.9			8.5	
LOS		C			A			A			A	
Approach Delay		23.3			5.6			5.9			8.5	
Approach LOS		C			A			A			A	

Intersection Summary
Cycle Length: 60
Offset: 51 (85%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 62.2% ICU Level of Service B

Splits and Phases: 2: Hays & 13th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1756	0	0	1793	0	0	0	0	0	3570	0
Flt Permitted					0.948						0.992	
Satd. Flow (perm)	0	1756	0	0	1707	0	0	0	0	0	3570	0
Satd. Flow (RTOR)		35									22	
Volume (vph)	0	234	54	52	527	0	0	0	0	66	316	46
Lane Group Flow (vph)	0	320	0	0	644	0	0	0	0	0	475	0
Turn Type				Perm						Split		
Protected Phases		2			2					4	4	
Permitted Phases				2								
Total Split (s)	0.0	39.0	0.0	39.0	39.0	0.0	0.0	0.0	0.0	21.0	21.0	0.0
Act Effct Green (s)		36.0			36.0						18.0	
Actuated g/C Ratio		0.60			0.60						0.30	
v/c Ratio		0.30			0.63						0.44	
Uniform Delay, d1		5.1			7.7						16.1	
Delay		3.2			2.1						16.4	
LOS		A			A						B	
Approach Delay		3.2			2.1						16.4	
Approach LOS		A			A						B	

Intersection Summary
Cycle Length: 60
Offset: 58 (97%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 74.8% ICU Level of Service C

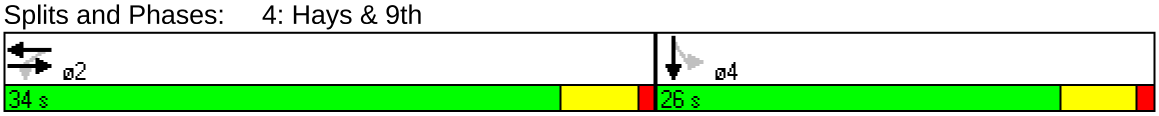
Splits and Phases: 3: Fort & 9th

4: Hays & 9th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1707	0	0	1853	0	0	0	0	0	3497	0
Flt Permitted					0.947						0.998	
Satd. Flow (perm)	0	1707	0	0	1764	0	0	0	0	0	3497	0
Satd. Flow (RTOR)		78									14	
Volume (vph)	0	181	114	30	248	0	0	0	0	13	360	27
Lane Group Flow (vph)	0	328	0	0	309	0	0	0	0	0	444	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Total Split (s)	0.0	34.0	0.0	34.0	34.0	0.0	0.0	0.0	0.0	26.0	26.0	0.0
Act Effct Green (s)		31.0			31.0						23.0	
Actuated g/C Ratio		0.52			0.52						0.38	
v/c Ratio		0.36			0.34						0.33	
Uniform Delay, d1		6.3			8.5						12.6	
Delay		2.9			7.2						5.6	
LOS		A			A						A	
Approach Delay		2.9			7.2						5.6	
Approach LOS		A			A						A	

Intersection Summary
Cycle Length: 60
Offset: 10 (17%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 5.2 Intersection LOS: A
Intersection Capacity Utilization 51.7% ICU Level of Service A

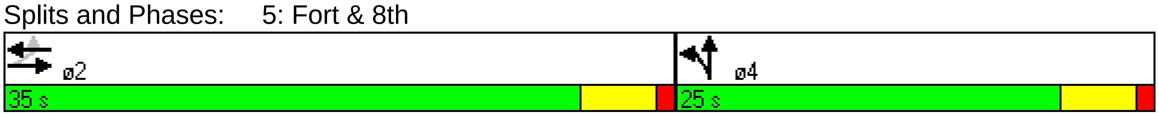
Splits and Phases: 4: Hays & 9th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1850	0	0	1811	0	0	3479	0	0	0	0
Flt Permitted		0.854						0.991				
Satd. Flow (perm)	0	1591	0	0	1811	0	0	3479	0	0	0	0
Satd. Flow (RTOR)					34			11				
Volume (vph)	38	227	0	0	467	124	92	398	28	0	0	0
Lane Group Flow (vph)	0	294	0	0	657	0	0	575	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			2		4	4				
Permitted Phases	2											
Total Split (s)	35.0	35.0	0.0	0.0	35.0	0.0	25.0	25.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		32.0			32.0			22.0				
Actuated g/C Ratio		0.53			0.53			0.37				
v/c Ratio		0.35			0.67			0.45				
Uniform Delay, d1		8.0			9.5			14.1				
Delay		8.8			2.1			8.7				
LOS		A			A			A				
Approach Delay		8.8			2.1			8.7				
Approach LOS		A			A			A				

Intersection Summary
Cycle Length: 60
Offset: 58 (97%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 5.9 Intersection LOS: A
Intersection Capacity Utilization 67.7% ICU Level of Service B

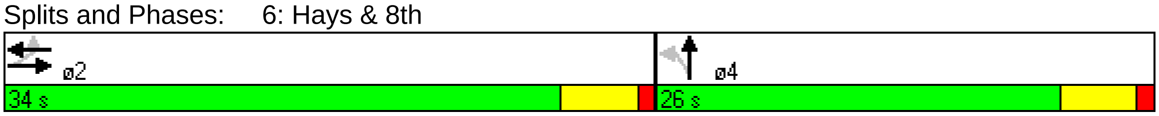
Splits and Phases: 5: Fort & 8th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1772	0	0	1852	0	0	3504	0	0	0	0
Flt Permitted		0.865						0.993				
Satd. Flow (perm)	0	1558	0	0	1852	0	0	3504	0	0	0	0
Satd. Flow (RTOR)					6			4				
Volume (vph)	55	119	0	0	196	10	74	408	11	0	0	0
Lane Group Flow (vph)	0	193	0	0	229	0	0	547	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		2			2			4				
Permitted Phases	2						4					
Total Split (s)	34.0	34.0	0.0	0.0	34.0	0.0	26.0	26.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		31.0			31.0			23.0				
Actuated g/C Ratio		0.52			0.52			0.38				
v/c Ratio		0.24			0.24			0.41				
Uniform Delay, d1		8.0			7.7			13.4				
Delay		14.8			5.9			6.4				
LOS		B			A			A				
Approach Delay		14.8			5.9			6.4				
Approach LOS		B			A			A				

Intersection Summary
Cycle Length: 60
Offset: 58 (97%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 7.9 Intersection LOS: A
Intersection Capacity Utilization 47.8% ICU Level of Service A

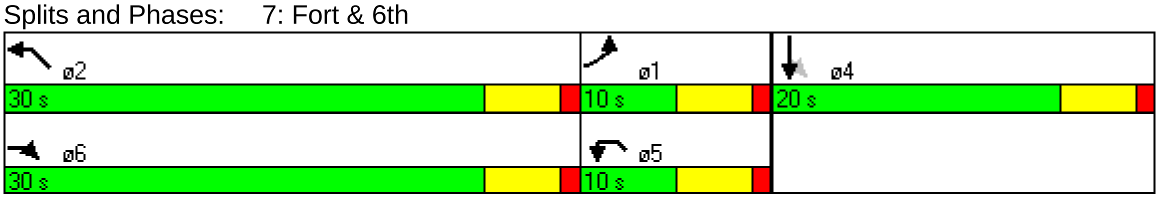
Splits and Phases: 6: Hays & 8th



Lane Group	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1652	1742	0	0	0	0	0	3703	0	1711	1772	0
Flt Permitted	0.950							0.994		0.950	0.953	
Satd. Flow (perm)	1652	1742	0	0	0	0	0	3703	0	1711	1772	0
Satd. Flow (RTOR)		20						40			2	
Volume (vph)	9	220	40	0	0	0	14	75	36	9	609	9
Lane Group Flow (vph)	10	288	0	0	0	0	0	139	0	10	687	0
Turn Type	Prot						Perm			Prot		
Protected Phases	1	6						4		5	2	
Permitted Phases							4					
Total Split (s)	10.0	30.0	0.0	0.0	0.0	0.0	20.0	20.0	0.0	10.0	30.0	0.0
Act Effct Green (s)	7.0	27.0						17.0		7.0	27.0	
Actuated g/C Ratio	0.12	0.45						0.28		0.12	0.45	
v/c Ratio	0.05	0.36						0.13		0.05	0.86	
Uniform Delay, d1	23.5	10.0						11.3		23.5	14.8	
Delay	38.0	15.9						11.9		19.9	19.2	
LOS	D	B						B		B	B	
Approach Delay	16.7							11.9			19.2	
Approach LOS	B							B			B	

Intersection Summary
Cycle Length: 60
Offset: 38 (63%), Referenced to phase 2:NWL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 70.0% ICU Level of Service C

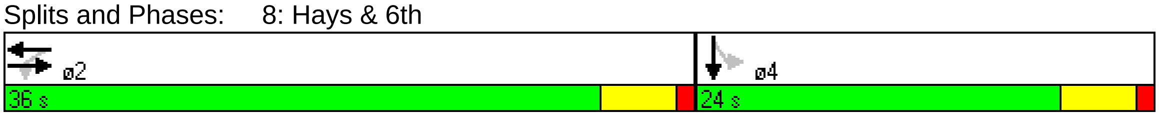
Splits and Phases: 7: Fort & 6th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1803	0	0	1766	0	0	0	0	0	4818	0
Flt Permitted					0.849						0.998	
Satd. Flow (perm)	0	1803	0	0	1529	0	0	0	0	0	4818	0
Satd. Flow (RTOR)		30									19	
Volume (vph)	0	88	27	101	159	0	0	0	0	5	119	17
Lane Group Flow (vph)	0	128	0	0	289	0	0	0	0	0	157	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Total Split (s)	0.0	36.0	0.0	36.0	36.0	0.0	0.0	0.0	0.0	24.0	24.0	0.0
Act Effct Green (s)		33.0			33.0						21.0	
Actuated g/C Ratio		0.55			0.55						0.35	
v/c Ratio		0.13			0.34						0.09	
Uniform Delay, d1		4.9			7.5						11.5	
Delay		2.7			4.3						9.9	
LOS		A			A						A	
Approach Delay		2.7			4.3						9.9	
Approach LOS		A			A						A	

Intersection Summary
Cycle Length: 60
Offset: 51 (85%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.34
Intersection Signal Delay: 5.5 Intersection LOS: A
Intersection Capacity Utilization 35.8% ICU Level of Service A

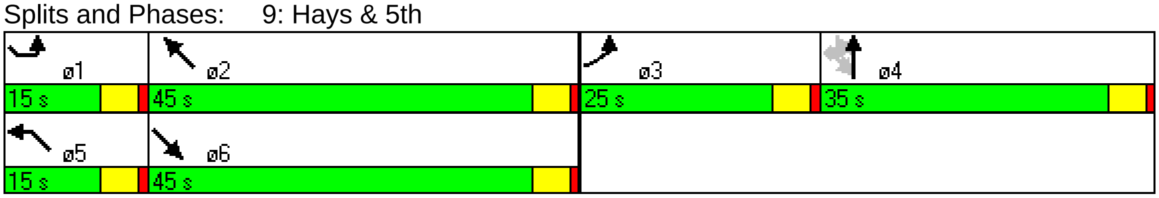
Splits and Phases: 8: Hays & 6th



Lane Group	EBL	EBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2	SEL	SET
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1571	0	0	1947	2035	0	1711	0	1583	0	1711	2109
Flt Permitted	0.996			0.950			0.730				0.950	
Satd. Flow (perm)	1571	0	0	1947	2035	0	1314	0	1583	0	1711	2109
Satd. Flow (RTOR)					10				8			
Volume (vph)	7	77	32	87	29	9	39	0	146	30	5	228
Lane Group Flow (vph)	94	0	0	133	42	0	43	0	195	0	6	254
Turn Type			Perm	Perm			D.Pm		custom		Prot	
Protected Phases	3				4						1	6
Permitted Phases			4	4			4		4			
Total Split (s)	25.0	0.0	35.0	35.0	35.0	0.0	35.0	0.0	35.0	0.0	15.0	45.0
Act Effct Green (s)	13.3			19.8	19.8		19.8		19.8		12.0	65.8
Actuated g/C Ratio	0.11			0.17	0.17		0.17		0.17		0.10	0.55
v/c Ratio	0.54			0.41	0.12		0.20		0.73		0.04	0.22
Uniform Delay, d1	51.7			44.9	32.4		43.2		45.5		48.7	14.5
Delay	40.0			50.3	37.6		40.5		44.4		48.2	16.2
LOS	D			D	D		D		D		D	B
Approach Delay	40.0				47.2			43.7				16.9
Approach LOS	D				D			D				B

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 38 (32%), Referenced to phase 2:NWT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 31.9 Intersection LOS: C
Intersection Capacity Utilization 54.5% ICU Level of Service A

Splits and Phases: 9: Hays & 5th



Lane Group	SER2	NWL	NWT	NWR
Lane Configurations				
Total Lost Time (s)	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1711	1857	0
Flt Permitted		0.950		
Satd. Flow (perm)	0	1711	1857	0
Satd. Flow (RTOR)			1	
Volume (vph)	1	101	369	8
Lane Group Flow (vph)	0	112	419	0
Turn Type		Prot		
Protected Phases		5	2	
Permitted Phases				
Total Split (s)	0.0	15.0	45.0	0.0
Act Effct Green (s)		11.5	65.2	
Actuated g/C Ratio		0.10	0.54	
v/c Ratio		0.69	0.41	
Uniform Delay, d1		52.4	16.7	
Delay		56.9	19.6	
LOS		E	B	
Approach Delay			27.5	
Approach LOS			C	

Intersection Summary

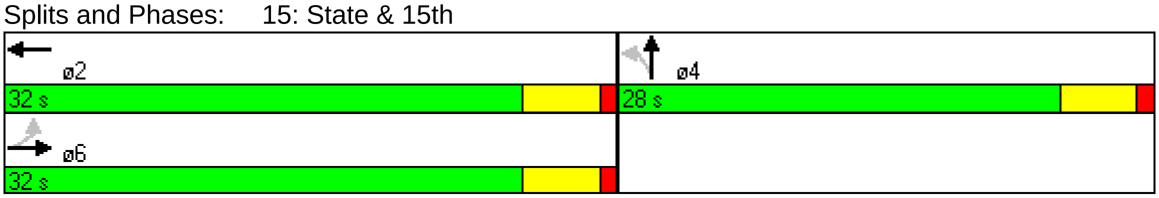
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Satd. Flow (prot)	0	1835	0	0	1835	0	0	0	0	0	1749	0
Flt Permitted					0.998						0.974	
Satd. Flow (perm)	0	1835	0	0	1835	0	0	0	0	0	1749	0
Volume (vph)	0	92	12	9	170	20	0	0	0	40	14	20
Lane Group Flow (vph)	0	115	0	0	221	0	0	0	0	0	82	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 24.8% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1652	3539	0	0	3493	0	1711	3504	0	0	0	0
Flt Permitted	0.138						0.950					
Satd. Flow (perm)	240	3539	0	0	3493	0	1711	3504	0	0	0	0
Satd. Flow (RTOR)					23			15				
Volume (vph)	63	628	0	0	966	92	205	659	46	0	0	0
Lane Group Flow (vph)	70	698	0	0	1175	0	228	783	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		6			2			4				
Permitted Phases	6						4					
Total Split (s)	32.0	32.0	0.0	0.0	32.0	0.0	28.0	28.0	0.0	0.0	0.0	0.0
Act Effct Green (s)	29.0	29.0			29.0		25.0	25.0				
Actuated g/C Ratio	0.48	0.48			0.48		0.42	0.42				
v/c Ratio	0.60	0.41			0.69		0.32	0.53				
Uniform Delay, d1	11.3	10.0			11.8		11.8	12.8				
Delay	25.0	2.9			9.0		6.9	6.3				
LOS	C	A			A		A	A				
Approach Delay		4.9			9.0			6.4				
Approach LOS		A			A			A				

Intersection Summary
Cycle Length: 60
Offset: 34 (57%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 7.0 Intersection LOS: A
Intersection Capacity Utilization 68.7% ICU Level of Service B

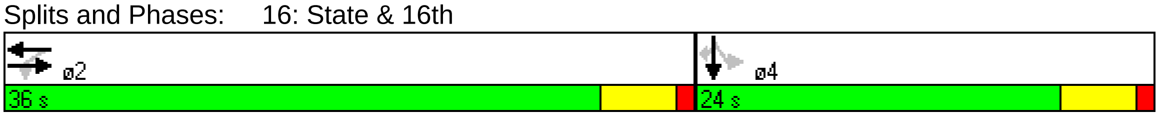
Splits and Phases: 15: State & 15th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	3490	0	1711	3539	0	0	0	0	1770	3421	1478
Flt Permitted				0.284						0.950		
Satd. Flow (perm)	0	3490	0	511	3539	0	0	0	0	1770	3421	1478
Satd. Flow (RTOR)		27										37
Volume (vph)	0	673	67	92	1244	0	0	0	0	79	457	112
Lane Group Flow (vph)	0	822	0	102	1382	0	0	0	0	88	508	124
Turn Type				Perm						Perm		Perm
Protected Phases		2			2						4	
Permitted Phases				2						4		4
Total Split (s)	0.0	36.0	0.0	36.0	36.0	0.0	0.0	0.0	0.0	24.0	24.0	24.0
Act Effct Green (s)		33.0		33.0	33.0					21.0	21.0	21.0
Actuated g/C Ratio		0.55		0.55	0.55					0.35	0.35	0.35
v/c Ratio		0.43		0.36	0.71					0.14	0.42	0.23
Uniform Delay, d1		7.6		7.6	9.9					13.3	14.9	9.5
Delay		13.6		3.0	3.3					11.7	13.2	8.5
LOS		B		A	A					B	B	A
Approach Delay		13.6			3.3						12.2	
Approach LOS		B			A						B	

Intersection Summary
Cycle Length: 60
Offset: 38 (63%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 58.9% ICU Level of Service A

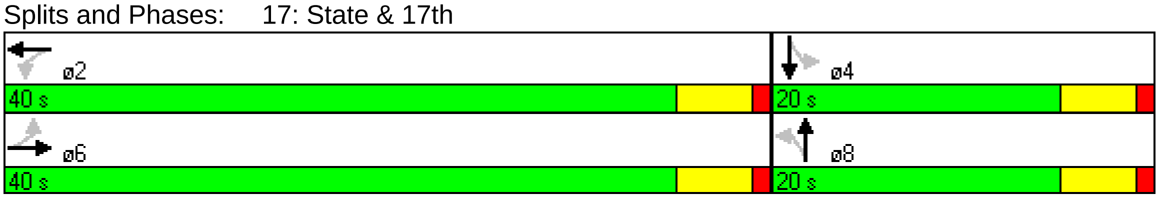
Splits and Phases: 16: State & 16th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1711	3532	0	1711	3483	0	1711	1963	0	1770	1846	0
Flt Permitted	0.108			0.359			0.615			0.549		
Satd. Flow (perm)	194	3532	0	646	3483	0	1107	1963	0	1023	1846	0
Satd. Flow (RTOR)		5			39			7			58	
Volume (vph)	62	612	10	27	1215	142	75	163	14	36	75	67
Lane Group Flow (vph)	69	691	0	30	1508	0	83	197	0	40	157	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Act Effct Green (s)	37.0	37.0		37.0	37.0		17.0	17.0		17.0	17.0	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.28	0.28		0.28	0.28	
v/c Ratio	0.57	0.32		0.08	0.70		0.26	0.35		0.14	0.28	
Uniform Delay, d1	6.8	5.4		4.6	7.5		16.6	16.5		16.0	10.3	
Delay	23.2	4.8		5.2	13.8		17.4	16.9		16.6	11.2	
LOS	C	A		A	B		B	B		B	B	
Approach Delay		6.4			13.7			17.1			12.3	
Approach LOS		A			B			B			B	

Intersection Summary
Cycle Length: 60
Offset: 2 (3%), Referenced to phase 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 11.9 Intersection LOS: B
Intersection Capacity Utilization 73.3% ICU Level of Service C

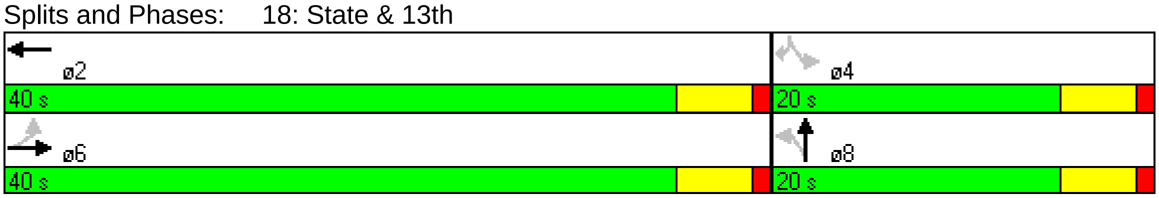
Splits and Phases: 17: State & 17th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	2961	0	0	2940	0	1752	1881	0	1540	0	1425
Flt Permitted		0.823					0.950			0.235		
Satd. Flow (perm)	0	2447	0	0	2940	0	1752	1881	0	381	0	1425
Satd. Flow (RTOR)					26			6				53
Volume (vph)	51	618	0	0	874	70	136	414	29	39	0	48
Lane Group Flow (vph)	0	744	0	0	1049	0	151	492	0	43	0	53
Turn Type	Perm						Perm			custom		custom
Protected Phases		6			2			8				
Permitted Phases	6						8			4		4
Total Split (s)	40.0	40.0	0.0	0.0	40.0	0.0	20.0	20.0	0.0	20.0	0.0	20.0
Act Effct Green (s)		37.0			37.0		17.0	17.0		17.0		17.0
Actuated g/C Ratio		0.62			0.62		0.28	0.28		0.28		0.28
v/c Ratio		0.49			0.58		0.30	0.92		0.40		0.12
Uniform Delay, d1		6.3			6.6		16.8	20.5		17.3		0.0
Delay		9.5			2.7		16.7	33.8		23.1		8.6
LOS		A			A		B	C		C		A
Approach Delay		9.5			2.7			29.8			15.1	
Approach LOS		A			A			C			B	

Intersection Summary
Cycle Length: 60
Offset: 8 (13%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 12.0 Intersection LOS: B
Intersection Capacity Utilization 75.7% ICU Level of Service C

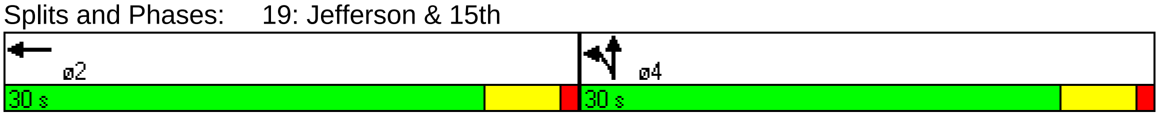
Splits and Phases: 18: State & 13th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	3408	0	0	3411	0	0	0	0
Flt Permitted								0.997				
Satd. Flow (perm)	0	0	0	0	3408	0	0	3411	0	0	0	0
Satd. Flow (RTOR)					66			15				
Volume (vph)	0	0	0	0	476	155	59	851	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	701	0	0	1012	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					27.0			27.0				
Actuated g/C Ratio					0.45			0.45				
v/c Ratio					0.45			0.66				
Uniform Delay, d1					10.1			12.7				
Delay					7.6			22.3				
LOS					A			C				
Approach Delay					7.6			22.3				
Approach LOS					A			C				

Intersection Summary
Cycle Length: 60
Offset: 35 (58%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 16.3 Intersection LOS: B
Intersection Capacity Utilization 54.8% ICU Level of Service A

Splits and Phases: 19: Jefferson & 15th

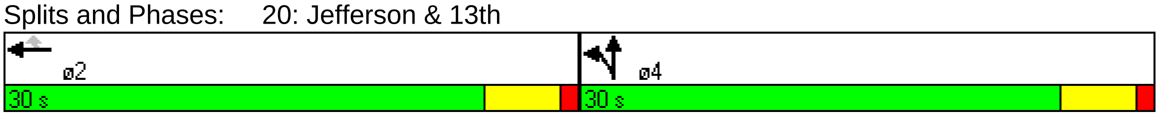


Lanes, Volumes, Timings
20: Jefferson & 13th 3/10/2004

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	3185	1472	0	3166	0	0	0	0
Flt Permitted								0.994				
Satd. Flow (perm)	0	0	0	0	3185	1472	0	3166	0	0	0	0
Satd. Flow (RTOR)						177		31				
Volume (vph)	0	0	0	0	578	159	54	415	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	642	177	0	521	0	0	0	0
Turn Type						Perm	Split					
Protected Phases					2		4	4				
Permitted Phases						2						
Total Split (s)	0.0	0.0	0.0	0.0	30.0	30.0	30.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					27.0	27.0		27.0				
Actuated g/C Ratio					0.45	0.45		0.45				
v/c Ratio					0.45	0.23		0.36				
Uniform Delay, d1					11.4	0.0		10.1				
Delay					5.3	1.0		2.0				
LOS					A	A		A				
Approach Delay					4.3			2.0				
Approach LOS					A			A				

Intersection Summary
Cycle Length: 60
Offset: 8 (13%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 3.4 Intersection LOS: A
Intersection Capacity Utilization 42.5% ICU Level of Service A

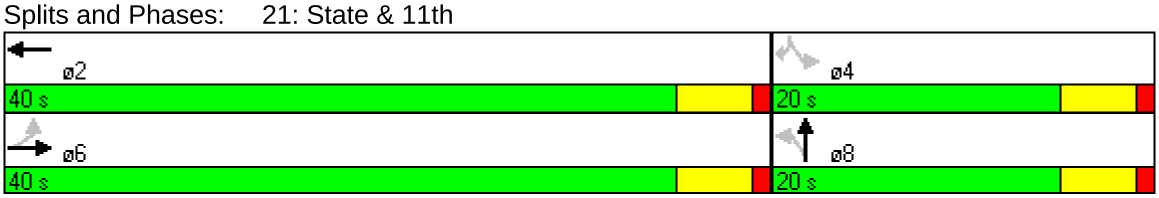
Splits and Phases: 20: Jefferson & 13th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	2964	0	0	2949	0	1593	2997	0	1540	0	1378
Flt Permitted		0.859					0.950			0.651		
Satd. Flow (perm)	0	2554	0	0	2949	0	1593	2997	0	1055	0	1378
Satd. Flow (RTOR)					19			63				38
Volume (vph)	42	564	0	0	758	45	150	86	57	37	0	34
Lane Group Flow (vph)	0	674	0	0	892	0	167	159	0	41	0	38
Turn Type	Perm						Perm			custom		custom
Protected Phases		6			2			8				
Permitted Phases	6						8			4		4
Total Split (s)	40.0	40.0	0.0	0.0	40.0	0.0	20.0	20.0	0.0	20.0	0.0	20.0
Act Effct Green (s)		37.0			37.0		17.0	17.0		17.0		17.0
Actuated g/C Ratio		0.62			0.62		0.28	0.28		0.28		0.28
v/c Ratio		0.43			0.49		0.37	0.18		0.14		0.09
Uniform Delay, d1		6.0			6.1		17.2	9.6		16.0		0.0
Delay		7.8			4.3		18.2	10.3		16.6		6.5
LOS		A			A		B	B		B		A
Approach Delay		7.8			4.3			14.3			11.7	
Approach LOS		A			A			B			B	

Intersection Summary
Cycle Length: 60
Offset: 59 (98%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 7.4 Intersection LOS: A
Intersection Capacity Utilization 51.2% ICU Level of Service A

Splits and Phases: 21: State & 11th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	3045	0	0	3036	0	0	1637	0	0	1773	0
Flt Permitted		0.856			0.823			0.855			0.909	
Satd. Flow (perm)	0	2615	0	0	2511	0	0	1428	0	0	1631	0
Satd. Flow (RTOR)		19			21			31			21	
Volume (vph)	44	588	38	78	715	52	82	66	54	23	51	19
Lane Group Flow (vph)	0	744	0	0	939	0	0	224	0	0	104	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Act Effct Green (s)		37.0			37.0			17.0			17.0	
Actuated g/C Ratio		0.62			0.62			0.28			0.28	
v/c Ratio		0.46			0.60			0.52			0.22	
Uniform Delay, d1		6.0			6.8			15.4			13.0	
Delay		5.9			5.9			10.5			14.0	
LOS		A			A			B			B	
Approach Delay		5.9			5.9			10.5			14.0	
Approach LOS		A			A			B			B	

Intersection Summary
Cycle Length: 60
Offset: 45 (75%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 6.8 Intersection LOS: A
Intersection Capacity Utilization 83.0% ICU Level of Service D

Splits and Phases: 22: State & 10th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	2971	0	0	2964	0	0	0	0	0	3077	0
Flt Permitted					0.892						0.998	
Satd. Flow (perm)	0	2971	0	0	2652	0	0	0	0	0	3077	0
Satd. Flow (RTOR)		72									56	
Volume (vph)	0	521	160	39	703	0	0	0	0	31	489	141
Lane Group Flow (vph)	0	757	0	0	824	0	0	0	0	0	734	0
Turn Type				Perm						Split		
Protected Phases		2			2					4	4	
Permitted Phases				2								
Total Split (s)	0.0	41.0	0.0	41.0	41.0	0.0	0.0	0.0	0.0	19.0	19.0	0.0
Act Effct Green (s)		38.0			38.0						16.0	
Actuated g/C Ratio		0.63			0.63						0.27	
v/c Ratio		0.40			0.49						0.85	
Uniform Delay, d1		4.8			5.8						19.2	
Delay		4.4			3.9						16.6	
LOS		A			A						B	
Approach Delay		4.4			3.9						16.6	
Approach LOS		A			A						B	

Intersection Summary
Cycle Length: 60
Offset: 31 (52%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 8.1 Intersection LOS: A
Intersection Capacity Utilization 67.6% ICU Level of Service B

Splits and Phases: 23: State & 9th

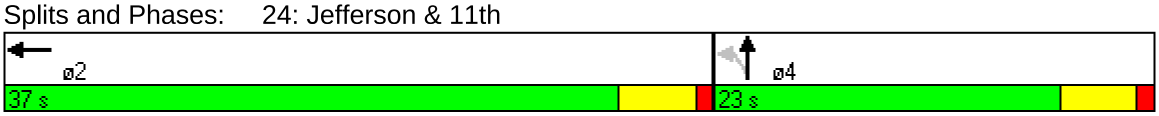
Lanes, Volumes, Timings
24: Jefferson & 11th

3/10/2004

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4476	0	0	4517	0	0	0	0
Flt Permitted								0.987				
Satd. Flow (perm)	0	0	0	0	4476	0	0	4517	0	0	0	0
Satd. Flow (RTOR)					90			70				
Volume (vph)	0	0	0	0	671	113	63	177	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	872	0	0	267	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Total Split (s)	0.0	0.0	0.0	0.0	37.0	0.0	23.0	23.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					34.0			20.0				
Actuated g/C Ratio					0.57			0.33				
v/c Ratio					0.34			0.17				
Uniform Delay, d1					6.1			10.3				
Delay					2.7			7.1				
LOS					A			A				
Approach Delay					2.7			7.1				
Approach LOS					A			A				

Intersection Summary
Cycle Length: 60
Offset: 46 (77%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.34
Intersection Signal Delay: 3.7 Intersection LOS: A
Intersection Capacity Utilization 31.6% ICU Level of Service A

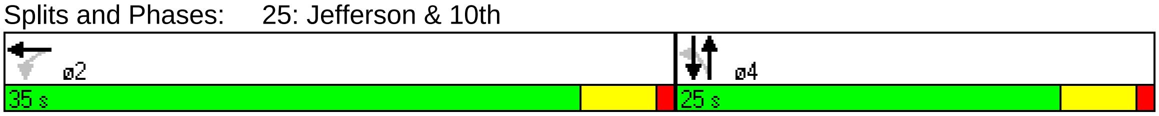
Splits and Phases: 24: Jefferson & 11th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4504	0	0	1708	0	0	1613	0
Flt Permitted					0.998			0.888				
Satd. Flow (perm)	0	0	0	0	4504	0	0	1538	0	0	1613	0
Satd. Flow (RTOR)					45						37	
Volume (vph)	0	0	0	33	588	65	48	122	0	0	111	43
Lane Group Flow (vph)	0	0	0	0	762	0	0	189	0	0	171	0
Turn Type				Perm			Perm					
Protected Phases					2			4			4	
Permitted Phases				2			4					
Total Split (s)	0.0	0.0	0.0	35.0	35.0	0.0	25.0	25.0	0.0	0.0	25.0	0.0
Act Effct Green (s)					32.0			22.0			22.0	
Actuated g/C Ratio					0.53			0.37			0.37	
v/c Ratio					0.31			0.34			0.28	
Uniform Delay, d1					7.3			13.7			10.3	
Delay					4.8			11.0			12.3	
LOS					A			B			B	
Approach Delay					4.8			11.0			12.3	
Approach LOS					A			B			B	

Intersection Summary
Cycle Length: 60
Offset: 38 (63%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.34
Intersection Signal Delay: 7.0 — Intersection LOS: A
Intersection Capacity Utilization 48.3% — ICU Level of Service A

Splits and Phases: 25: Jefferson & 10th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4536	0	0	0	0	0	4536	0
Flt Permitted					0.991							
Satd. Flow (perm)	0	0	0	0	4536	0	0	0	0	0	4536	0
Satd. Flow (RTOR)					22						16	
Volume (vph)	0	0	0	147	635	0	0	0	0	0	778	49
Lane Group Flow (vph)	0	0	0	0	869	0	0	0	0	0	918	0
Turn Type				Split								
Protected Phases				2	2						4	
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	39.0	39.0	0.0	0.0	0.0	0.0	0.0	21.0	0.0
Act Effct Green (s)					36.0						18.0	
Actuated g/C Ratio					0.60						0.30	
v/c Ratio					0.32						0.67	
Uniform Delay, d1					5.8						18.0	
Delay					2.8						11.4	
LOS					A						B	
Approach Delay					2.8						11.4	
Approach LOS					A						B	

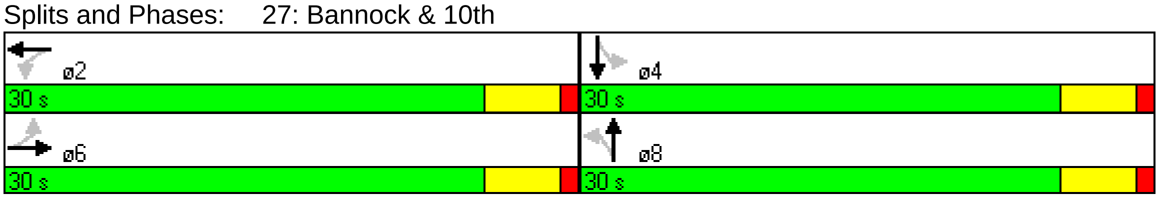
Intersection Summary
Cycle Length: 60
Offset: 43 (72%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 7.2 Intersection LOS: A
Intersection Capacity Utilization 45.4% ICU Level of Service A

Splits and Phases: 26: Jefferson & 9th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1636	0	0	1633	0	0	1636	0	0	1719	0
Flt Permitted		0.993			0.914			0.985			0.953	
Satd. Flow (perm)	0	1626	0	0	1506	0	0	1616	0	0	1648	0
Satd. Flow (RTOR)		23			16			70			1	
Volume (vph)	5	182	39	44	165	31	13	127	90	18	122	2
Lane Group Flow (vph)	0	251	0	0	266	0	0	255	0	0	158	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Act Effct Green (s)		27.0			27.0			27.0			27.0	
Actuated g/C Ratio		0.45			0.45			0.45			0.45	
v/c Ratio		0.34			0.39			0.33			0.21	
Uniform Delay, d1		9.6			10.2			7.5			9.9	
Delay		9.2			20.2			4.9			4.7	
LOS		A			C			A			A	
Approach Delay		9.2			20.2			4.9			4.7	
Approach LOS		A			C			A			A	

Intersection Summary
Cycle Length: 60
Offset: 40 (67%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 10.4 Intersection LOS: B
Intersection Capacity Utilization 60.9% ICU Level of Service B

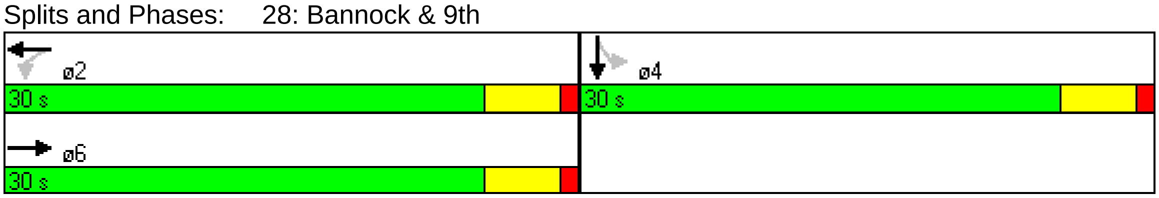
Splits and Phases: 27: Bannock & 10th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1611	0	0	1658	0	0	0	0	0	4545	0
Flt Permitted					0.863						0.999	
Satd. Flow (perm)	0	1611	0	0	1447	0	0	0	0	0	4545	0
Satd. Flow (RTOR)		44									13	
Volume (vph)	0	250	100	52	179	0	0	0	0	21	884	37
Lane Group Flow (vph)	0	389	0	0	257	0	0	0	0	0	1046	0
Turn Type				Perm						Perm		
Protected Phases		6			2						4	
Permitted Phases				2						4		
Total Split (s)	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	0.0
Act Effct Green (s)		27.0			27.0						27.0	
Actuated g/C Ratio		0.45			0.45						0.45	
v/c Ratio		0.52			0.39						0.51	
Uniform Delay, d1		10.3			11.0						11.6	
Delay		10.5			11.5						3.1	
LOS		B			B						A	
Approach Delay		10.5			11.5						3.1	
Approach LOS		B			B						A	

Intersection Summary
Cycle Length: 60
Offset: 2 (3%), Referenced to phase 2:WBTL and 6:EBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 6.1 Intersection LOS: A
Intersection Capacity Utilization 71.6% ICU Level of Service C

Splits and Phases: 28: Bannock & 9th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1486	1621	0	0	1665	0	1540	3147	0	0	0	0
Flt Permitted	0.276						0.950					
Satd. Flow (perm)	432	1621	0	0	1665	0	1540	3147	0	0	0	0
Satd. Flow (RTOR)					9			16				
Volume (vph)	165	383	0	0	592	34	159	406	37	0	0	0
Lane Group Flow (vph)	183	426	0	0	696	0	177	492	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			2		4	4				
Permitted Phases	2											
Total Split (s)	40.0	40.0	0.0	0.0	40.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0
Act Effct Green (s)	37.0	37.0			37.0		17.0	17.0				
Actuated g/C Ratio	0.62	0.62			0.62		0.28	0.28				
v/c Ratio	0.69	0.43			0.68		0.41	0.54				
Uniform Delay, d1	7.6	6.0			7.4		17.4	17.6				
Delay	17.0	5.6			4.2		16.3	16.2				
LOS	B	A			A		B	B				
Approach Delay		9.0			4.2			16.2				
Approach LOS		A			A			B				

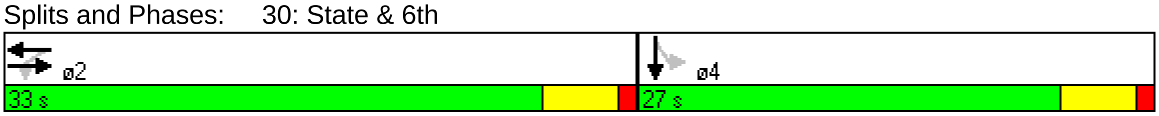
Intersection Summary
Cycle Length: 60
Offset: 30 (50%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 9.8 Intersection LOS: A
Intersection Capacity Utilization 77.6% ICU Level of Service C

Splits and Phases: 29: State & 8th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1635	0	0	1671	0	0	0	0	0	4331	0
Flt Permitted					0.951						0.999	
Satd. Flow (perm)	0	1635	0	0	1594	0	0	0	0	0	4331	0
Satd. Flow (RTOR)		28									57	
Volume (vph)	0	394	91	33	490	0	0	0	0	16	564	89
Lane Group Flow (vph)	0	539	0	0	581	0	0	0	0	0	744	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Total Split (s)	0.0	33.0	0.0	33.0	33.0	0.0	0.0	0.0	0.0	27.0	27.0	0.0
Act Effct Green (s)		30.0			30.0						24.0	
Actuated g/C Ratio		0.50			0.50						0.40	
v/c Ratio		0.65			0.73						0.42	
Uniform Delay, d1		10.4			11.8						11.9	
Delay		14.0			8.5						11.1	
LOS		B			A						B	
Approach Delay		14.0			8.5						11.1	
Approach LOS		B			A						B	

Intersection Summary
Cycle Length: 60
Offset: 10 (17%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 92.8% ICU Level of Service E

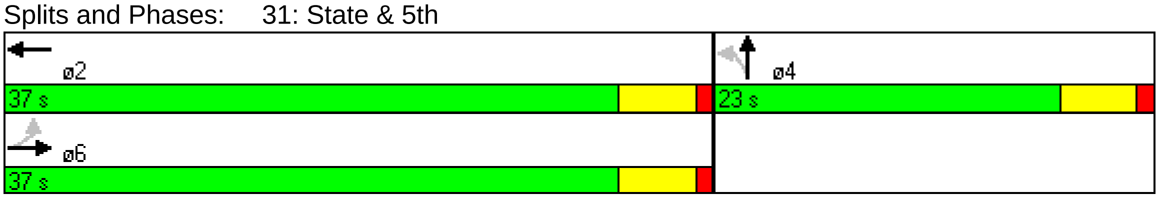
Splits and Phases: 30: State & 6th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1671	0	0	1665	0	0	3513	0	0	0	0
Flt Permitted		0.955						0.989				
Satd. Flow (perm)	0	1601	0	0	1665	0	0	3513	0	0	0	0
Satd. Flow (RTOR)					7			23				
Volume (vph)	26	379	0	0	462	24	80	239	39	0	0	0
Lane Group Flow (vph)	0	450	0	0	540	0	0	398	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		6			2			4				
Permitted Phases	6						4					
Total Split (s)	37.0	37.0	0.0	0.0	37.0	0.0	23.0	23.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		34.0			34.0			20.0				
Actuated g/C Ratio		0.57			0.57			0.33				
v/c Ratio		0.50			0.57			0.34				
Uniform Delay, d1		7.8			8.2			14.1				
Delay		6.3			8.7			5.1				
LOS		A			A			A				
Approach Delay		6.3			8.7			5.1				
Approach LOS		A			A			A				

Intersection Summary
Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 66.7% ICU Level of Service B

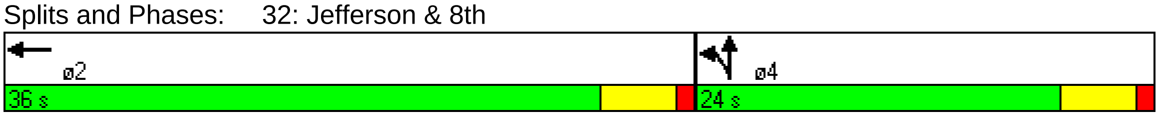
Splits and Phases: 31: State & 5th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4348	0	0	4522	0	0	0	0
Flt Permitted								0.988				
Satd. Flow (perm)	0	0	0	0	4348	0	0	4522	0	0	0	0
Satd. Flow (RTOR)					333			62				
Volume (vph)	0	0	0	0	688	342	56	180	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1144	0	0	262	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	36.0	0.0	24.0	24.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					33.0			21.0				
Actuated g/C Ratio					0.55			0.35				
v/c Ratio					0.45			0.16				
Uniform Delay, d1					5.4			10.1				
Delay					5.5			10.3				
LOS					A			B				
Approach Delay					5.5			10.3				
Approach LOS					A			B				

Intersection Summary
Cycle Length: 60
Offset: 34 (57%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 6.4 Intersection LOS: A
Intersection Capacity Utilization 38.2% ICU Level of Service A

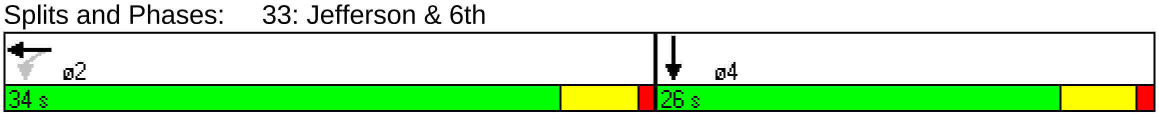
Splits and Phases: 32: Jefferson & 8th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	3166	0	0	0	0	0	4150	0
Flt Permitted					0.994							
Satd. Flow (perm)	0	0	0	0	3166	0	0	0	0	0	4150	0
Satd. Flow (RTOR)					38						343	
Volume (vph)	0	0	0	41	298	0	0	0	0	0	500	352
Lane Group Flow (vph)	0	0	0	0	377	0	0	0	0	0	947	0
Turn Type				Perm								
Protected Phases					2						4	
Permitted Phases				2								
Total Split (s)	0.0	0.0	0.0	34.0	34.0	0.0	0.0	0.0	0.0	0.0	26.0	0.0
Act Effct Green (s)					31.0						23.0	
Actuated g/C Ratio					0.52						0.38	
v/c Ratio					0.23						0.53	
Uniform Delay, d1					7.1						8.6	
Delay					1.7						2.5	
LOS					A						A	
Approach Delay					1.7						2.5	
Approach LOS					A						A	

Intersection Summary
Cycle Length: 60
Offset: 16 (27%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 2.2 Intersection LOS: A
Intersection Capacity Utilization 40.0% ICU Level of Service A

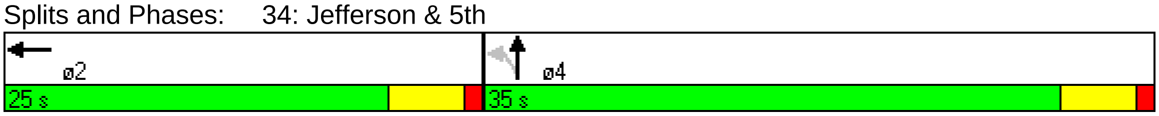
Splits and Phases: 33: Jefferson & 6th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	3147	0	0	3150	0	0	0	0
Flt Permitted								0.989				
Satd. Flow (perm)	0	0	0	0	3147	0	0	3150	0	0	0	0
Satd. Flow (RTOR)					17			80				
Volume (vph)	0	0	0	0	237	21	72	263	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	286	0	0	372	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Total Split (s)	0.0	0.0	0.0	0.0	25.0	0.0	35.0	35.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					22.0			32.0				
Actuated g/C Ratio					0.37			0.53				
v/c Ratio					0.25			0.22				
Uniform Delay, d1					12.4			5.7				
Delay					12.6			7.4				
LOS					B			A				
Approach Delay					12.6			7.4				
Approach LOS					B			A				

Intersection Summary
Cycle Length: 60
Offset: 7 (12%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.25
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 27.1% ICU Level of Service A

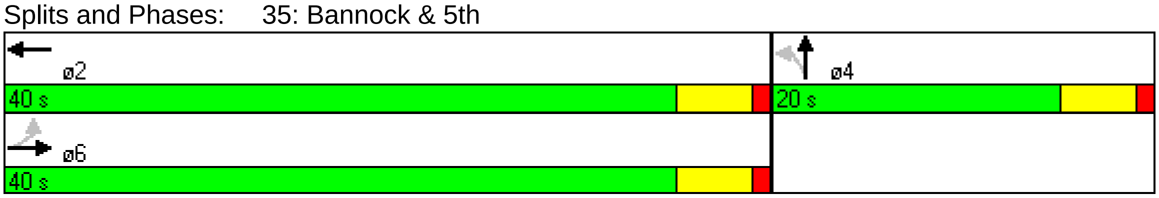
Splits and Phases: 34: Jefferson & 5th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1661	0	0	1665	0	0	3138	0	0	0	0
Flt Permitted		0.912						0.994				
Satd. Flow (perm)	0	1529	0	0	1665	0	0	3138	0	0	0	0
Satd. Flow (RTOR)					8			11				
Volume (vph)	36	161	0	0	284	15	43	295	22	0	0	0
Lane Group Flow (vph)	0	219	0	0	333	0	0	400	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		6			2			4				
Permitted Phases	6						4					
Total Split (s)	40.0	40.0	0.0	0.0	40.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		37.0			37.0			17.0				
Actuated g/C Ratio		0.62			0.62			0.28				
v/c Ratio		0.23			0.32			0.45				
Uniform Delay, d1		5.1			5.4			17.1				
Delay		6.6			5.6			10.8				
LOS		A			A			B				
Approach Delay		6.6			5.6			10.8				
Approach LOS		A			A			B				

Intersection Summary
Cycle Length: 60
Offset: 32 (53%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 8.0 Intersection LOS: A
Intersection Capacity Utilization 50.5% ICU Level of Service A

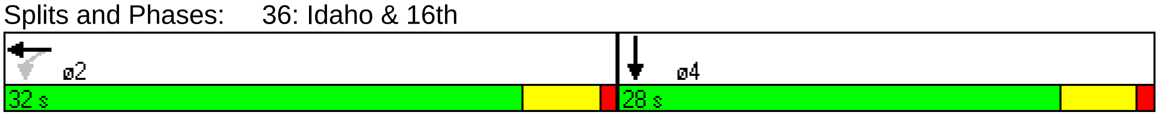
Splits and Phases: 35: Bannock & 5th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	3221	1660	0	0	0	0	0	4911	0
Flt Permitted				0.950	0.979							
Satd. Flow (perm)	0	0	0	3221	1660	0	0	0	0	0	4911	0
Satd. Flow (RTOR)				43	24						2	
Volume (vph)	0	0	0	707	176	0	0	0	0	0	1056	6
Lane Group Flow (vph)	0	0	0	644	338	0	0	0	0	0	1180	0
Turn Type				Perm								
Protected Phases					2						4	
Permitted Phases				2								
Total Split (s)	0.0	0.0	0.0	32.0	32.0	0.0	0.0	0.0	0.0	0.0	28.0	0.0
Act Effct Green (s)				29.0	29.0						25.0	
Actuated g/C Ratio				0.48	0.48						0.42	
v/c Ratio				0.41	0.41						0.58	
Uniform Delay, d1				9.2	9.2						13.4	
Delay				4.8	5.1						8.4	
LOS				A	A						A	
Approach Delay					4.9						8.4	
Approach LOS					A						A	

Intersection Summary
Cycle Length: 60
Offset: 4 (7%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 6.8 Intersection LOS: A
Intersection Capacity Utilization 47.4% ICU Level of Service A

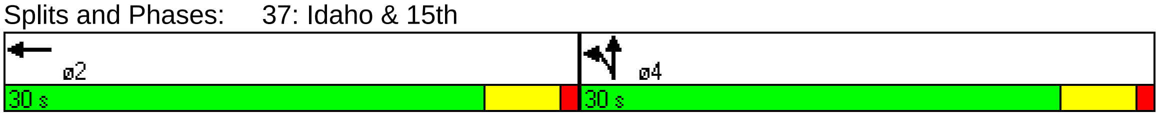
Splits and Phases: 36: Idaho & 16th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4979	0	0	3525	0	0	0	0
Flt Permitted								0.996				
Satd. Flow (perm)	0	0	0	0	4979	0	0	3525	0	0	0	0
Satd. Flow (RTOR)					69			23				
Volume (vph)	0	0	0	0	780	129	75	753	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1010	0	0	920	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					27.0			27.0				
Actuated g/C Ratio					0.45			0.45				
v/c Ratio					0.44			0.58				
Uniform Delay, d1					10.5			11.9				
Delay					1.0			5.9				
LOS					A			A				
Approach Delay					1.0			5.9				
Approach LOS					A			A				

Intersection Summary
Cycle Length: 60
Offset: 50 (83%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 3.3 Intersection LOS: A
Intersection Capacity Utilization 52.2% ICU Level of Service A

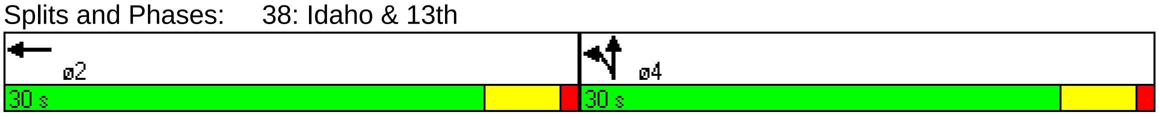
Splits and Phases: 37: Idaho & 15th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4526	0	0	3381	0	0	0	0
Flt Permitted								0.995				
Satd. Flow (perm)	0	0	0	0	4526	0	0	3381	0	0	0	0
Satd. Flow (RTOR)					28			24				
Volume (vph)	0	0	0	0	863	70	46	433	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1037	0	0	532	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					27.0			27.0				
Actuated g/C Ratio					0.45			0.45				
v/c Ratio					0.51			0.35				
Uniform Delay, d1					11.4			10.2				
Delay					3.5			26.0				
LOS					A			C				
Approach Delay					3.5			26.0				
Approach LOS					A			C				

Intersection Summary
Cycle Length: 60
Offset: 33 (55%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 45.6% ICU Level of Service A

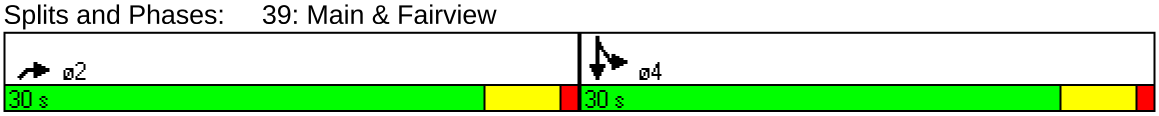
Splits and Phases: 38: Idaho & 13th



Lane Group	EBT	WBT	NBT	SBL	SBT	SBR2	NEL	NER	NER2
Lane Configurations									
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	1711	3539	2787	0	3610	0
Flt Permitted				0.950					
Satd. Flow (perm)	0	0	0	1711	3539	2787	0	3610	0
Satd. Flow (RTOR)				157		1289		4	
Volume (vph)	0	0	0	141	518	1160	0	521	8
Lane Group Flow (vph)	0	0	0	157	576	1289	0	588	0
Turn Type				Split		Free		custom	
Protected Phases				4	4			2	
Permitted Phases						Free		2	
Total Split (s)	0.0	0.0	0.0	30.0	30.0	0.0	0.0	30.0	0.0
Act Effct Green (s)				27.0	27.0	60.0		27.0	
Actuated g/C Ratio				0.45	0.45	1.00		0.45	
v/c Ratio				0.18	0.36	0.46		0.36	
Uniform Delay, d1				0.0	10.8	0.0		10.7	
Delay				1.7	8.7	0.3		29.2	
LOS				A	A	A		C	
Approach Delay					2.8		29.2		
Approach LOS					A		C		

Intersection Summary
Cycle Length: 60
Offset: 21 (35%), Referenced to phase 2:NER, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 8.8 Intersection LOS: A
Intersection Capacity Utilization 36.3% ICU Level of Service A

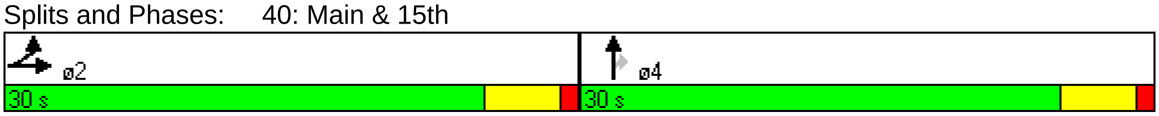
Splits and Phases: 39: Main & Fairview



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	5050	0	0	0	0	0	3539	1531	0	0	0
Flt Permitted		0.993										
Satd. Flow (perm)	0	5050	0	0	0	0	0	3539	1531	0	0	0
Satd. Flow (RTOR)		68							170			
Volume (vph)	94	574	0	0	0	0	0	699	153	0	0	0
Lane Group Flow (vph)	0	742	0	0	0	0	0	777	170	0	0	0
Turn Type	Split								Perm			
Protected Phases	2	2						4				
Permitted Phases									4			
Total Split (s)	30.0	30.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	0.0	0.0	0.0
Act Effct Green (s)		27.0						27.0	27.0			
Actuated g/C Ratio		0.45						0.45	0.45			
v/c Ratio		0.32						0.49	0.22			
Uniform Delay, d1		9.5						11.6	0.0			
Delay		4.3						5.1	0.2			
LOS		A						A	A			
Approach Delay		4.3						4.2				
Approach LOS		A						A				

Intersection Summary
Cycle Length: 60
Offset: 32 (53%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 4.2 Intersection LOS: A
Intersection Capacity Utilization 42.6% ICU Level of Service A

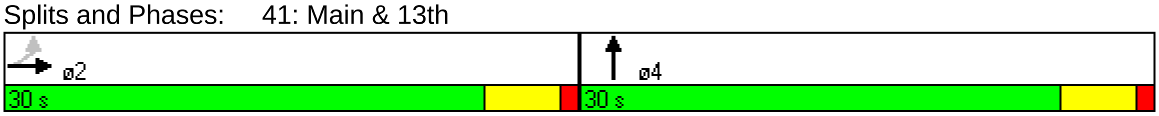
Splits and Phases: 40: Main & 15th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	4472	0	0	0	0	0	3051	0	0	0	0
Flt Permitted		0.996										
Satd. Flow (perm)	0	4472	0	0	0	0	0	3051	0	0	0	0
Satd. Flow (RTOR)		95						15				
Volume (vph)	61	530	88	0	0	0	0	419	28	0	0	0
Lane Group Flow (vph)	0	755	0	0	0	0	0	497	0	0	0	0
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Total Split (s)	30.0	30.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		27.0						27.0				
Actuated g/C Ratio		0.45						0.45				
v/c Ratio		0.37						0.36				
Uniform Delay, d1		9.3						10.5				
Delay		2.8						10.0				
LOS		A						A				
Approach Delay		2.8						10.0				
Approach LOS		A						A				

Intersection Summary
Cycle Length: 60
Offset: 52 (87%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 5.6 Intersection LOS: A
Intersection Capacity Utilization 38.7% ICU Level of Service A

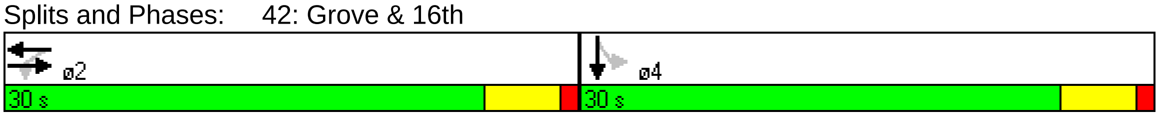
Splits and Phases: 41: Main & 13th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1745	0	0	3397	0	0	0	0	0	5055	0
Flt Permitted					0.911						0.998	
Satd. Flow (perm)	0	1745	0	0	3117	0	0	0	0	0	5055	0
Satd. Flow (RTOR)		22									9	
Volume (vph)	0	66	20	38	219	0	0	0	0	21	480	14
Lane Group Flow (vph)	0	95	0	0	285	0	0	0	0	0	572	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Total Split (s)	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	0.0
Act Effct Green (s)		27.0			27.0						27.0	
Actuated g/C Ratio		0.45			0.45						0.45	
v/c Ratio		0.12			0.20						0.25	
Uniform Delay, d1		7.3			10.0						10.0	
Delay		5.3			6.6						0.4	
LOS		A			A						A	
Approach Delay		5.3			6.6						0.4	
Approach LOS		A			A						A	

Intersection Summary
Cycle Length: 60
Offset: 31 (52%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.25
Intersection Signal Delay: 2.8 Intersection LOS: A
Intersection Capacity Utilization 28.2% ICU Level of Service A

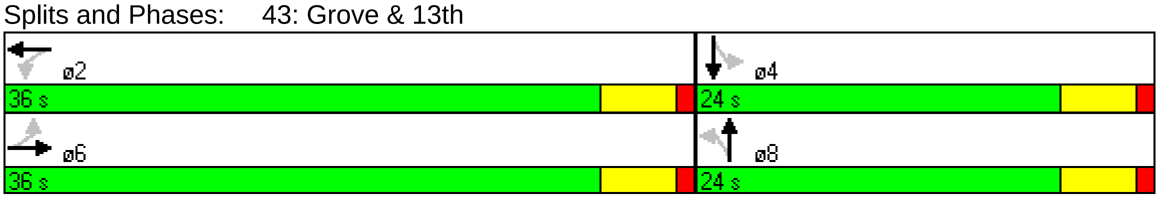
Splits and Phases: 42: Grove & 16th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1531	0	0	1677	0	0	3160	0	0	1658	0
Flt Permitted		0.991			0.810			0.919				
Satd. Flow (perm)	0	1520	0	0	1388	0	0	2919	0	0	1658	0
Satd. Flow (RTOR)		116			11			4			8	
Volume (vph)	5	57	104	116	136	22	45	402	9	0	92	8
Lane Group Flow (vph)	0	185	0	0	304	0	0	507	0	0	111	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Total Split (s)	36.0	36.0	0.0	36.0	36.0	0.0	24.0	24.0	0.0	24.0	24.0	0.0
Act Effct Green (s)		33.0			33.0			21.0			21.0	
Actuated g/C Ratio		0.55			0.55			0.35			0.35	
v/c Ratio		0.21			0.40			0.50			0.19	
Uniform Delay, d1		2.4			7.4			15.2			12.5	
Delay		3.0			7.9			28.1			2.7	
LOS		A			A			C			A	
Approach Delay		3.0			7.9			28.1			2.7	
Approach LOS		A			A			C			A	

Intersection Summary
Cycle Length: 60
Offset: 24 (40%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 59.3% ICU Level of Service A

Splits and Phases: 43: Grove & 13th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4536	0	0	4526	0	0	0	0
Flt Permitted								0.989				
Satd. Flow (perm)	0	0	0	0	4536	0	0	4526	0	0	0	0
Satd. Flow (RTOR)					30			68				
Volume (vph)	0	0	0	0	873	54	61	227	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1030	0	0	320	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	40.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					37.0			17.0				
Actuated g/C Ratio					0.62			0.28				
v/c Ratio					0.37			0.24				
Uniform Delay, d1					5.5			12.8				
Delay					0.6			2.3				
LOS					A			A				
Approach Delay					0.6			2.3				
Approach LOS					A			A				

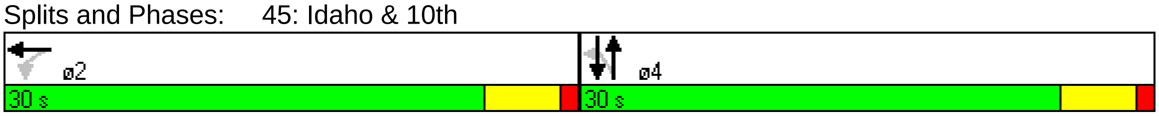
Intersection Summary
Cycle Length: 60
Offset: 14 (23%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 1.0 Intersection LOS: A
Intersection Capacity Utilization 35.9% ICU Level of Service A

Splits and Phases: 44: Idaho & 11th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4481	0	0	1713	0	0	1673	0
Flt Permitted					0.998			0.922				
Satd. Flow (perm)	0	0	0	0	4481	0	0	1597	0	0	1673	0
Satd. Flow (RTOR)					57						37	
Volume (vph)	0	0	0	40	858	130	21	73	0	0	163	55
Lane Group Flow (vph)	0	0	0	0	1141	0	0	104	0	0	242	0
Turn Type				Perm			Perm					
Protected Phases					2			4			4	
Permitted Phases				2			4					
Total Split (s)	0.0	0.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0	0.0	30.0	0.0
Act Effct Green (s)					27.0			27.0			27.0	
Actuated g/C Ratio					0.45			0.45			0.45	
v/c Ratio					0.56			0.14			0.31	
Uniform Delay, d1					11.4			9.7			8.8	
Delay					4.1			10.8			6.3	
LOS					A			B			A	
Approach Delay					4.1			10.8			6.3	
Approach LOS					A			B			A	

Intersection Summary
Cycle Length: 60
Offset: 5 (8%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 4.9 Intersection LOS: A
Intersection Capacity Utilization 46.4% ICU Level of Service A

Splits and Phases: 45: Idaho & 10th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4517	0	0	0	0	0	4522	0
Flt Permitted					0.987							
Satd. Flow (perm)	0	0	0	0	4517	0	0	0	0	0	4522	0
Satd. Flow (RTOR)					11						25	
Volume (vph)	0	0	0	348	943	0	0	0	0	0	958	84
Lane Group Flow (vph)	0	0	0	0	1435	0	0	0	0	0	1157	0
Turn Type				Split								
Protected Phases				2	2						4	
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	38.0	38.0	0.0	0.0	0.0	0.0	0.0	22.0	0.0
Act Effct Green (s)					35.0						19.0	
Actuated g/C Ratio					0.58						0.32	
v/c Ratio					0.54						0.80	
Uniform Delay, d1					7.5						18.3	
Delay					0.7						7.4	
LOS					A						A	
Approach Delay					0.7						7.4	
Approach LOS					A						A	

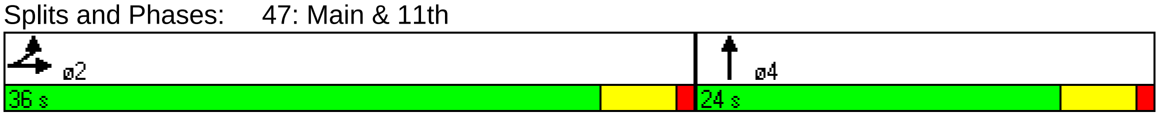
Intersection Summary
Cycle Length: 60
Offset: 59 (98%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 3.7 Intersection LOS: A
Intersection Capacity Utilization 63.0% ICU Level of Service B

Splits and Phases: 46: Idaho & 9th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	4453	0	0	0	0	0	3048	0	0	0	0
Flt Permitted		0.999										
Satd. Flow (perm)	0	4453	0	0	0	0	0	3048	0	0	0	0
Satd. Flow (RTOR)		131						113				
Volume (vph)	20	574	125	0	0	0	0	270	110	0	0	0
Lane Group Flow (vph)	0	799	0	0	0	0	0	422	0	0	0	0
Turn Type	Split											
Protected Phases	2	2						4				
Permitted Phases												
Total Split (s)	36.0	36.0	0.0	0.0	0.0	0.0	0.0	24.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		33.0						21.0				
Actuated g/C Ratio		0.55						0.35				
v/c Ratio		0.32						0.37				
Uniform Delay, d1		6.0						10.4				
Delay		2.0						4.9				
LOS		A						A				
Approach Delay		2.0						4.9				
Approach LOS		A						A				

Intersection Summary
Cycle Length: 60
Offset: 10 (17%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 3.0 Intersection LOS: A
Intersection Capacity Utilization 37.9% ICU Level of Service A

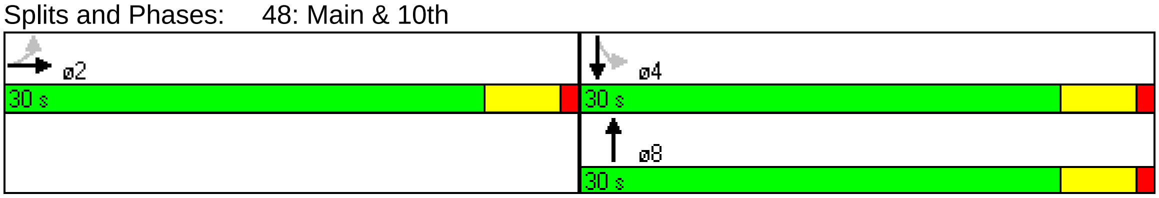
Splits and Phases: 47: Main & 11th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	4554	0	0	0	0	0	1658	0	0	1694	0
Flt Permitted		0.999									0.828	
Satd. Flow (perm)	0	4554	0	0	0	0	0	1658	0	0	1434	0
Satd. Flow (RTOR)		8						41				
Volume (vph)	8	695	17	0	0	0	0	80	37	93	114	0
Lane Group Flow (vph)	0	800	0	0	0	0	0	130	0	0	230	0
Turn Type	Perm									Perm		
Protected Phases		2						8			4	
Permitted Phases	2									4		
Total Split (s)	30.0	30.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0
Act Effct Green (s)		27.0						27.0			27.0	
Actuated g/C Ratio		0.45						0.45			0.45	
v/c Ratio		0.39						0.17			0.36	
Uniform Delay, d1		10.9						6.6			10.8	
Delay		6.9						6.3			9.0	
LOS		A						A			A	
Approach Delay		6.9						6.3			9.0	
Approach LOS		A						A			A	

Intersection Summary
Cycle Length: 60
Offset: 20 (33%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 7.2 Intersection LOS: A
Intersection Capacity Utilization 49.0% ICU Level of Service A

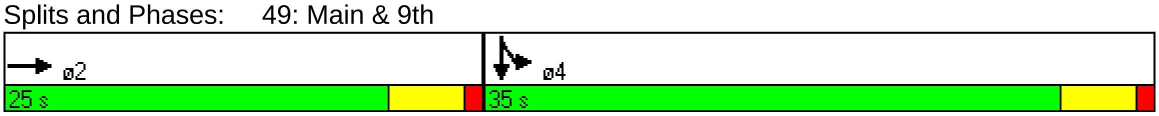
Splits and Phases: 48: Main & 10th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	4216	0	0	0	0	0	0	0	0	4554	0
Flt Permitted											0.995	
Satd. Flow (perm)	0	4216	0	0	0	0	0	0	0	0	4554	0
Satd. Flow (RTOR)		22									49	
Volume (vph)	0	591	268	0	0	0	0	0	0	155	1374	0
Lane Group Flow (vph)	0	955	0	0	0	0	0	0	0	0	1699	0
Turn Type										Split		
Protected Phases		2								4	4	
Permitted Phases												
Total Split (s)	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.0	35.0	0.0
Act Effct Green (s)		22.0									32.0	
Actuated g/C Ratio		0.37									0.53	
v/c Ratio		0.61									0.69	
Uniform Delay, d1		15.1									10.0	
Delay		6.4									7.3	
LOS		A									A	
Approach Delay		6.4									7.3	
Approach LOS		A									A	

Intersection Summary
Cycle Length: 60
Offset: 27 (45%), Referenced to phase 2:EBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 7.0 Intersection LOS: A
Intersection Capacity Utilization 64.8% ICU Level of Service B

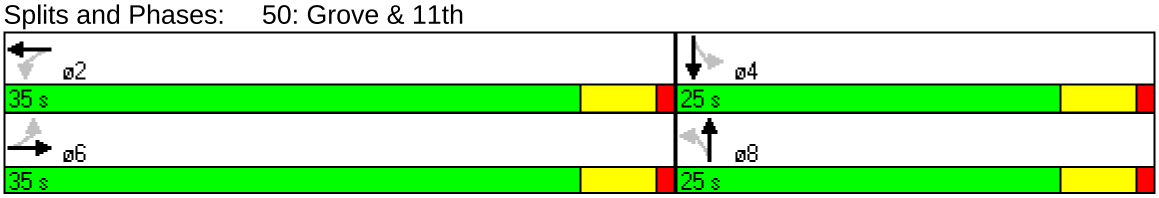
Splits and Phases: 49: Main & 9th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1681	0	0	1645	0	0	3154	0	0	1653	0
Flt Permitted		0.926			0.884			0.919			0.980	
Satd. Flow (perm)	0	1572	0	0	1478	0	0	2913	0	0	1623	0
Satd. Flow (RTOR)		13			45			6			10	
Volume (vph)	16	50	12	93	116	74	33	280	11	6	110	12
Lane Group Flow (vph)	0	87	0	0	314	0	0	360	0	0	142	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Total Split (s)	35.0	35.0	0.0	35.0	35.0	0.0	25.0	25.0	0.0	25.0	25.0	0.0
Act Effct Green (s)		32.0			32.0			22.0			22.0	
Actuated g/C Ratio		0.53			0.53			0.37			0.37	
v/c Ratio		0.10			0.39			0.34			0.24	
Uniform Delay, d1		5.8			6.9			13.5			12.2	
Delay		6.2			5.9			18.2			9.8	
LOS		A			A			B			A	
Approach Delay		6.2			5.9			18.2			9.8	
Approach LOS		A			A			B			A	

Intersection Summary
Cycle Length: 60
Offset: 59 (98%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 47.2% ICU Level of Service A

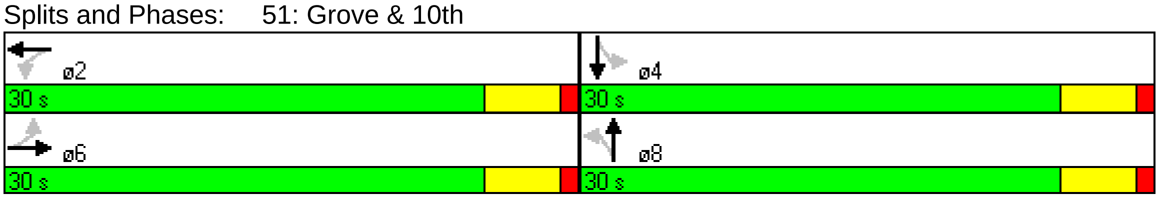
Splits and Phases: 50: Grove & 11th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1655	0	0	1674	0	0	1679	0	0	1619	0
Flt Permitted		0.957			0.978			0.972			0.958	
Satd. Flow (perm)	0	1595	0	0	1643	0	0	1642	0	0	1563	0
Satd. Flow (RTOR)		4			31			16			74	
Volume (vph)	11	65	4	20	159	50	9	55	14	24	63	67
Lane Group Flow (vph)	0	88	0	0	255	0	0	87	0	0	171	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Total Split (s)	30.0	30.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0
Act Effct Green (s)		27.0			27.0			27.0			27.0	
Actuated g/C Ratio		0.45			0.45			0.45			0.45	
v/c Ratio		0.12			0.34			0.12			0.23	
Uniform Delay, d1		9.1			9.3			7.7			5.5	
Delay		7.7			9.7			8.4			12.9	
LOS		A			A			A			B	
Approach Delay		7.7			9.7			8.4			12.9	
Approach LOS		A			A			A			B	

Intersection Summary
Cycle Length: 60
Offset: 54 (90%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.34
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 45.3% ICU Level of Service A

Splits and Phases: 51: Grove & 10th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1628	0	0	1593	0	0	0	0	0	0	0
Flt Permitted		0.753			0.968							
Satd. Flow (perm)	0	1250	0	0	1547	0	0	0	0	0	0	0
Satd. Flow (RTOR)		13			88							
Volume (vph)	106	155	21	25	211	127	0	0	0	0	0	0
Lane Group Flow (vph)	0	313	0	0	403	0	0	0	0	0	0	0
Turn Type	Perm			Perm								
Protected Phases		2			2							
Permitted Phases	2			2								
Total Split (s)	60.0	60.0	0.0	60.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		57.0			57.0							
Actuated g/C Ratio		0.72			0.72							
v/c Ratio		0.35			0.35							
Uniform Delay, d1		3.9			3.0							
Delay		4.1			3.2							
LOS		A			A							
Approach Delay		4.1			3.2							
Approach LOS		A			A							

Intersection Summary
Cycle Length: 79
Actuated Cycle Length: 79
Offset: 5 (6%), Referenced to phase 2:EBWB, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.35
Intersection Signal Delay: 3.6 Intersection LOS: A
Intersection Capacity Utilization 50.5% ICU Level of Service A

Splits and Phases: 52: Bannock & 8th

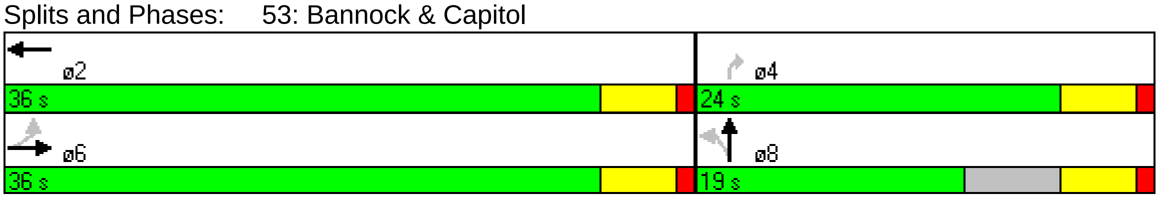
Lane Group	ø4
Lane Configurations	
Total Lost Time (s)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Total Split (s)	19.0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Uniform Delay, d1	
Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1673	0	0	1658	0	0	3131	1472	0	0	0
Flt Permitted		0.990						0.983				
Satd. Flow (perm)	0	1660	0	0	1658	0	0	3131	1472	0	0	0
Satd. Flow (RTOR)					11				102			
Volume (vph)	8	164	0	0	115	10	181	357	92	0	0	0
Lane Group Flow (vph)	0	191	0	0	139	0	0	598	102	0	0	0
Turn Type	Perm						Perm		custom			
Protected Phases		6			2			8				
Permitted Phases	6						8		4			
Total Split (s)	36.0	36.0	0.0	0.0	36.0	0.0	19.0	19.0	24.0	0.0	0.0	0.0
Act Effct Green (s)		33.0			33.0			21.0	21.0			
Actuated g/C Ratio		0.55			0.55			0.35	0.35			
v/c Ratio		0.21			0.15			0.55	0.18			
Uniform Delay, d1		6.9			6.1			15.7	0.0			
Delay		7.1			2.6			4.9	0.8			
LOS		A			A			A	A			
Approach Delay		7.1			2.6			4.3				
Approach LOS		A			A			A				

Intersection Summary
Cycle Length: 60
Offset: 48 (80%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 4.6 Intersection LOS: A
Intersection Capacity Utilization 37.9% ICU Level of Service A

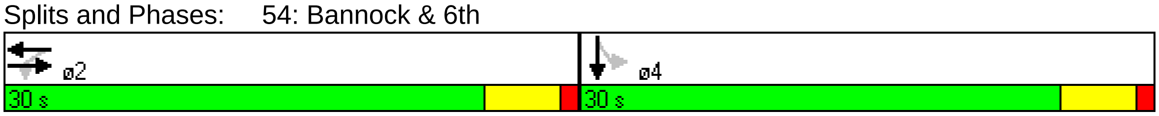
Splits and Phases: 53: Bannock & Capitol



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1561	0	0	1619	0	0	0	0	0	4522	0
Flt Permitted					0.552						0.995	
Satd. Flow (perm)	0	1561	0	0	925	0	0	0	0	0	4522	0
Satd. Flow (RTOR)		113									16	
Volume (vph)	0	129	133	217	93	0	0	0	0	61	480	26
Lane Group Flow (vph)	0	291	0	0	344	0	0	0	0	0	630	0
Turn Type				Perm						Perm		
Protected Phases		2			2						4	
Permitted Phases				2						4		
Total Split (s)	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0	30.0	30.0	0.0
Act Effct Green (s)		27.0			27.0						27.0	
Actuated g/C Ratio		0.45			0.45						0.45	
v/c Ratio		0.38			0.83						0.31	
Uniform Delay, d1		6.3			14.4						10.2	
Delay		12.6			22.0						4.7	
LOS		B			C						A	
Approach Delay		12.6			22.0						4.7	
Approach LOS		B			C						A	

Intersection Summary
Cycle Length: 60
Offset: 30 (50%), Referenced to phase 2:EBWB, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 11.2 Intersection LOS: B
Intersection Capacity Utilization 63.0% ICU Level of Service B

Splits and Phases: 54: Bannock & 6th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4415	0	0	0	0	0	1512	0
Flt Permitted					0.998							
Satd. Flow (perm)	0	0	0	0	4415	0	0	0	0	0	1512	0
Satd. Flow (RTOR)					18						42	
Volume (vph)	0	0	0	50	1262	0	0	0	0	0	14	38
Lane Group Flow (vph)	0	0	0	0	1458	0	0	0	0	0	58	0
Turn Type				Perm								
Protected Phases					2						4	
Permitted Phases				2								
Total Split (s)	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0
Act Effct Green (s)					37.0						17.0	
Actuated g/C Ratio					0.62						0.28	
v/c Ratio					0.53						0.13	
Uniform Delay, d1					6.5						4.3	
Delay					8.5						8.1	
LOS					A						A	
Approach Delay					8.5						8.1	
Approach LOS					A						A	

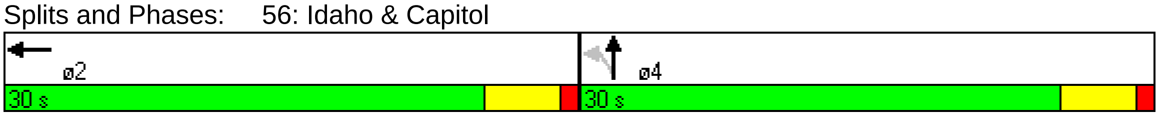
Intersection Summary
Cycle Length: 60
Offset: 52 (87%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 8.5 Intersection LOS: A
Intersection Capacity Utilization 41.8% ICU Level of Service A

Splits and Phases: 55: Idaho & 8th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4526	0	1546	3039	0	0	0	0
Flt Permitted							0.950	0.996				
Satd. Flow (perm)	0	0	0	0	4526	0	1546	3039	0	0	0	0
Satd. Flow (RTOR)					26		76	19				
Volume (vph)	0	0	0	0	809	62	485	755	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	968	0	464	914	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Total Split (s)	0.0	0.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					27.0		27.0	27.0				
Actuated g/C Ratio					0.45		0.45	0.45				
v/c Ratio					0.47		0.63	0.66				
Uniform Delay, d1					11.2		10.3	12.6				
Delay					5.5		9.3	10.7				
LOS					A		A	B				
Approach Delay					5.5			10.2				
Approach LOS					A			B				

Intersection Summary
Cycle Length: 60
Offset: 38 (63%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 8.3 Intersection LOS: A
Intersection Capacity Utilization 56.4% ICU Level of Service A

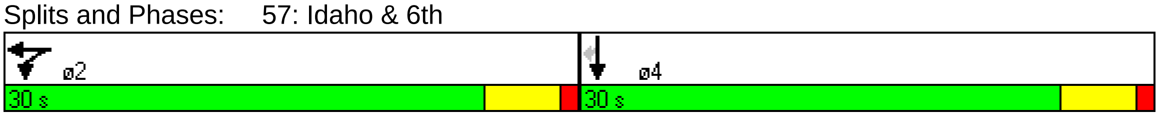
Splits and Phases: 56: Idaho & Capitol



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	4531	0	0	0	0	0	3185	1425
Flt Permitted					0.990							
Satd. Flow (perm)	0	0	0	0	4531	0	0	0	0	0	3185	1425
Satd. Flow (RTOR)					133							95
Volume (vph)	0	0	0	187	744	0	0	0	0	0	631	201
Lane Group Flow (vph)	0	0	0	0	1035	0	0	0	0	0	701	223
Turn Type				Split								Perm
Protected Phases				2	2						4	
Permitted Phases												4
Total Split (s)	0.0	0.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0
Act Effct Green (s)					27.0						27.0	27.0
Actuated g/C Ratio					0.45						0.45	0.45
v/c Ratio					0.49						0.49	0.32
Uniform Delay, d1					9.9						11.6	5.8
Delay					6.6						7.3	2.8
LOS					A						A	A
Approach Delay					6.6						6.2	
Approach LOS					A						A	

Intersection Summary
Cycle Length: 60
Offset: 29 (48%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 6.4 Intersection LOS: A
Intersection Capacity Utilization 50.6% ICU Level of Service A

Splits and Phases: 57: Idaho & 6th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	3153	0	0	3128	0	0	0	0
Flt Permitted								0.982				
Satd. Flow (perm)	0	0	0	0	3153	0	0	3128	0	0	0	0
Satd. Flow (RTOR)					24			188				
Volume (vph)	0	0	0	0	740	55	180	315	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	883	0	0	550	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Total Split (s)	0.0	0.0	0.0	0.0	40.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					37.0			17.0				
Actuated g/C Ratio					0.62			0.28				
v/c Ratio					0.45			0.54				
Uniform Delay, d1					5.9			11.6				
Delay					6.1			11.5				
LOS					A			B				
Approach Delay					6.1			11.5				
Approach LOS					A			B				

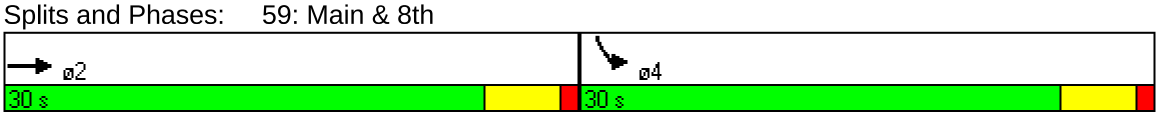
Intersection Summary
Cycle Length: 60
Offset: 20 (33%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 51.3% ICU Level of Service A

Splits and Phases: 58: Idaho & 5th

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	4424	0	0	1593	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	4424	0	0	1593	0
Satd. Flow (RTOR)					95	
Volume (vph)	0	746	0	0	64	0
Lane Group Flow (vph)	0	829	0	0	71	0
Turn Type						
Protected Phases		2			4	
Permitted Phases						
Total Split (s)	0.0	30.0	0.0	0.0	30.0	0.0
Act Effct Green (s)		27.0			27.0	
Actuated g/C Ratio		0.45			0.45	
v/c Ratio		0.42			0.09	
Uniform Delay, d1		11.2			0.0	
Delay		5.2			0.6	
LOS		A			A	
Approach Delay		5.2			0.6	
Approach LOS		A			A	

Intersection Summary
Cycle Length: 60
Offset: 37 (62%), Referenced to phase 2:EBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 4.9 Intersection LOS: A
Intersection Capacity Utilization 28.8% ICU Level of Service A

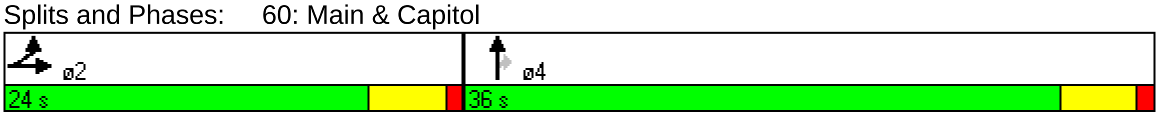
Splits and Phases: 59: Main & 8th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	4380	0	0	0	0	0	4577	1425	0	0	0
Flt Permitted		0.990										
Satd. Flow (perm)	0	4380	0	0	0	0	0	4577	1425	0	0	0
Satd. Flow (RTOR)		83							73			
Volume (vph)	171	639	0	0	0	0	0	957	327	0	0	0
Lane Group Flow (vph)	0	900	0	0	0	0	0	1063	363	0	0	0
Turn Type	Split								Perm			
Protected Phases	2	2						4				
Permitted Phases									4			
Total Split (s)	24.0	24.0	0.0	0.0	0.0	0.0	0.0	36.0	36.0	0.0	0.0	0.0
Act Effct Green (s)		21.0						33.0	33.0			
Actuated g/C Ratio		0.35						0.55	0.55			
v/c Ratio		0.57						0.42	0.44			
Uniform Delay, d1		14.2						7.9	6.2			
Delay		3.1						13.5	12.2			
LOS		A						B	B			
Approach Delay		3.1						13.2				
Approach LOS		A						B				

Intersection Summary
Cycle Length: 60
Offset: 47 (78%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 51.2% ICU Level of Service A

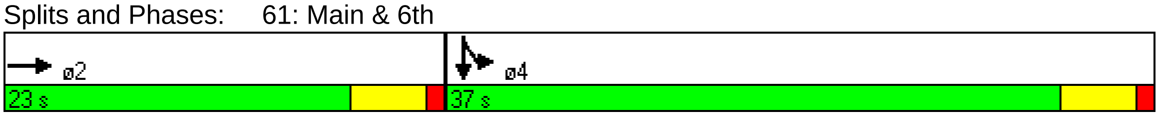
Splits and Phases: 60: Main & Capitol



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	4426	0	0	0	0	0	0	0	1401	3051	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	4426	0	0	0	0	0	0	0	1401	3051	0
Satd. Flow (RTOR)		125								46		
Volume (vph)	0	706	195	0	0	0	0	0	0	110	642	0
Lane Group Flow (vph)	0	1001	0	0	0	0	0	0	0	122	713	0
Turn Type										Split		
Protected Phases		2								4	4	
Permitted Phases												
Total Split (s)	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.0	37.0	0.0
Act Effct Green (s)		20.0								34.0	34.0	
Actuated g/C Ratio		0.33								0.57	0.57	
v/c Ratio		0.64								0.15	0.41	
Uniform Delay, d1		14.6								3.7	7.3	
Delay		9.5								3.5	7.6	
LOS		A								A	A	
Approach Delay		9.5									7.0	
Approach LOS		A									A	

Intersection Summary
Cycle Length: 60
Offset: 57 (95%), Referenced to phase 2:EBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 8.3 Intersection LOS: A
Intersection Capacity Utilization 50.5% ICU Level of Service A

Splits and Phases: 61: Main & 6th



	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1593	3185	0	0	0	0	0	3125	0	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	1593	3185	0	0	0	0	0	3125	0	0	0	0
Satd. Flow (RTOR)	276							26				
Volume (vph)	248	669	0	0	0	0	0	234	33	0	0	0
Lane Group Flow (vph)	276	743	0	0	0	0	0	297	0	0	0	0
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Total Split (s)	40.0	40.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
Act Effct Green (s)	37.0	37.0						17.0				
Actuated g/C Ratio	0.62	0.62						0.28				
v/c Ratio	0.25	0.38						0.33				
Uniform Delay, d1	0.0	5.7						15.4				
Delay	0.1	2.3						15.7				
LOS	A	A						B				
Approach Delay		1.7						15.7				
Approach LOS		A						B				

Intersection Summary
Cycle Length: 60
Offset: 7 (12%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.38
Intersection Signal Delay: 4.9 Intersection LOS: A
Intersection Capacity Utilization 38.8% ICU Level of Service A

Splits and Phases: 62: Main & 5th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Satd. Flow (prot)	0	1839	0	0	1859	0	0	0	0	0	1716	0
Flt Permitted					0.998						0.995	
Satd. Flow (perm)	0	1839	0	0	1859	0	0	0	0	0	1716	0
Volume (vph)	0	75	8	9	180	0	0	0	0	8	28	44
Lane Group Flow (vph)	0	92	0	0	210	0	0	0	0	0	89	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 24.4% ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	3507	0	0	2004	0	0	2056	0
Flt Permitted								0.865				
Satd. Flow (perm)	0	0	0	0	3507	0	0	1772	0	0	2056	0
Satd. Flow (RTOR)					17						18	
Volume (vph)	0	0	0	3	330	22	24	29	0	0	106	25
Lane Group Flow (vph)	0	0	0	0	394	0	0	59	0	0	146	0
Turn Type				Perm			Perm					
Protected Phases					2			4			4	
Permitted Phases				2			4					
Total Split (s)	0.0	0.0	0.0	45.0	45.0	0.0	25.0	25.0	0.0	0.0	25.0	0.0
Act Effct Green (s)					42.0			22.0			22.0	
Actuated g/C Ratio					0.60			0.31			0.31	
v/c Ratio					0.19			0.11			0.22	
Uniform Delay, d1					6.0			17.0			15.4	
Delay					3.3			17.4			15.8	
LOS					A			B			B	
Approach Delay					3.3			17.4			15.8	
Approach LOS					A			B			B	

Intersection Summary
Cycle Length: 70
Offset: 65 (93%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.22
Intersection Signal Delay: 7.7 Intersection LOS: A
Intersection Capacity Utilization 25.6% ICU Level of Service A

Splits and Phases: 64: Idaho & 1st

Lane Group	WBL2	WBL	WBR	WBR2	NBL	SEL	SER	SER2	NEL	NET	NER	NER2
Lane Configurations												
Satd. Flow (prot)	0	1766	0	1583	0	1629	0	0	0	1770	0	0
Flt Permitted		0.954				0.994				0.997		
Satd. Flow (perm)	0	1766	0	1583	0	1629	0	0	0	1770	0	0
Volume (vph)	60	84	6	3	0	1	6	1	2	20	11	1
Lane Group Flow (vph)	0	167	0	3	0	9	0	0	0	37	0	0
Sign Control		Stop			Stop	Stop				Stop		

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 25.9% ICU Level of Service A

Lane Group	SWL	SWT	SWR
Lane Configurations			
Satd. Flow (prot)	0	1785	0
Flt Permitted		0.961	
Satd. Flow (perm)	0	1785	0
Volume (vph)	38	8	1
Lane Group Flow (vph)	0	52	0
Sign Control		Stop	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type												
Protected Phases												
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Uniform Delay, d1												
Delay												
LOS												
Approach Delay												
Approach LOS												

Intersection Summary
Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.00
Intersection Signal Delay: 0.0 Intersection LOS: A
Intersection Capacity Utilization 0.0% ICU Level of Service A

Splits and Phases: 69: Fort & 15th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1863	1636	1711	1987	0	0	0	0	0	3525	0
Flt Permitted				0.950								
Satd. Flow (perm)	0	1863	1636	1711	1987	0	0	0	0	0	3525	0
Satd. Flow (RTOR)			281								4	
Volume (vph)	0	199	253	152	628	0	0	0	0	1	181	5
Lane Group Flow (vph)	0	221	281	169	698	0	0	0	0	0	208	0
Turn Type			Prot	Prot						Split		
Protected Phases		6	6	5	2					4	4	
Permitted Phases												
Total Split (s)	0.0	24.0	24.0	24.0	48.0	0.0	0.0	0.0	0.0	24.0	24.0	0.0
Act Effct Green (s)		18.6	18.6	10.1	30.4						8.4	
Actuated g/C Ratio		0.43	0.43	0.22	0.70						0.19	
v/c Ratio		0.28	0.33	0.44	0.50						0.32	
Uniform Delay, d1		8.5	0.0	15.1	3.2						15.6	
Delay		11.2	2.3	12.3	3.9						13.0	
LOS		B	A	B	A						B	
Approach Delay		6.2			5.6						13.0	
Approach LOS		A			A						B	

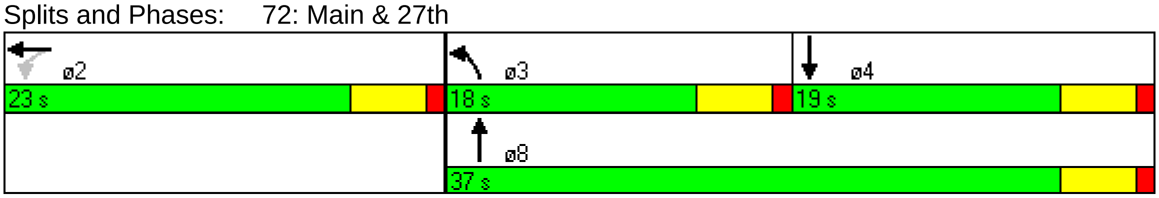
Intersection Summary
Cycle Length: 72
Actuated Cycle Length: 43.4
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 6.7 Intersection LOS: A
Intersection Capacity Utilization 49.2% ICU Level of Service A

Splits and Phases: 70: Hays & 16th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6293	0	1652	3421	0	0	3216	0
Flt Permitted					0.998		0.950					
Satd. Flow (perm)	0	0	0	0	6293	0	1652	3421	0	0	3216	0
Satd. Flow (RTOR)					54						79	
Volume (vph)	0	0	0	67	1536	195	303	849	0	0	374	248
Lane Group Flow (vph)	0	0	0	0	1998	0	337	943	0	0	692	0
Turn Type				Perm			Prot					
Protected Phases					2		3	8			4	
Permitted Phases				2								
Total Split (s)	0.0	0.0	0.0	23.0	23.0	0.0	18.0	37.0	0.0	0.0	19.0	0.0
Act Effct Green (s)					20.0		15.0	34.0			16.0	
Actuated g/C Ratio					0.33		0.25	0.57			0.27	
v/c Ratio					0.94		0.82	0.49			0.76	
Uniform Delay, d1					18.8		21.2	7.8			17.7	
Delay					19.2		23.8	16.3			19.3	
LOS					B		C	B			B	
Approach Delay					19.2			18.3			19.3	
Approach LOS					B			B			B	

Intersection Summary
Cycle Length: 60
Offset: 46 (77%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 19.0 Intersection LOS: B
Intersection Capacity Utilization 78.5% ICU Level of Service C

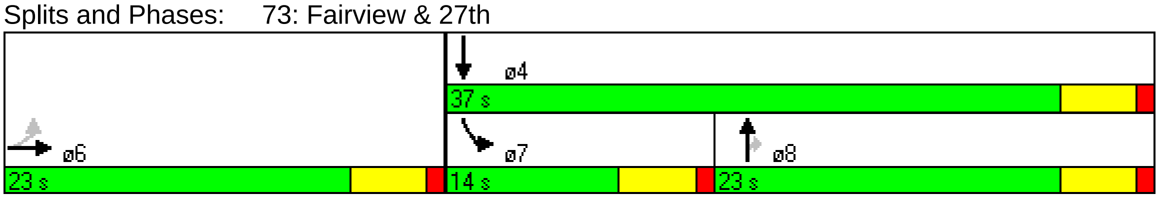
Splits and Phases: 72: Main & 27th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1829	5144	0	0	0	0	0	3539	1689	1770	3421	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1829	5144	0	0	0	0	0	3539	1689	1770	3421	0
Satd. Flow (RTOR)		58							59			
Volume (vph)	440	702	117	0	0	0	0	754	53	102	400	0
Lane Group Flow (vph)	489	910	0	0	0	0	0	838	59	113	444	0
Turn Type	Perm								Perm	Prot		
Protected Phases		6						8		7	4	
Permitted Phases	6								8			
Total Split (s)	23.0	23.0	0.0	0.0	0.0	0.0	0.0	23.0	23.0	14.0	37.0	0.0
Act Effct Green (s)	20.0	20.0						20.0	20.0	11.0	34.0	
Actuated g/C Ratio	0.33	0.33						0.33	0.33	0.18	0.57	
v/c Ratio	0.80	0.52						0.71	0.10	0.35	0.23	
Uniform Delay, d1	18.2	15.0						17.5	0.0	21.4	6.5	
Delay	24.1	15.2						17.9	4.8	28.6	5.1	
LOS	C	B						B	A	C	A	
Approach Delay		18.3						17.0			9.9	
Approach LOS		B						B			A	

Intersection Summary
Cycle Length: 60
Offset: 53 (88%), Referenced to phase 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 16.2 Intersection LOS: B
Intersection Capacity Utilization 66.5% ICU Level of Service B

Splits and Phases: 73: Fairview & 27th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6389	0	1652	1863	0	0	1739	1478
Flt Permitted							0.717					
Satd. Flow (perm)	0	0	0	0	6389	0	1247	1863	0	0	1739	1478
Satd. Flow (RTOR)					11							22
Volume (vph)	0	0	0	8	1377	32	113	166	0	0	55	53
Lane Group Flow (vph)	0	0	0	0	1575	0	126	184	0	0	61	59
Turn Type				Perm			Perm					Perm
Protected Phases					2			8			4	
Permitted Phases				2			8					4
Total Split (s)	0.0	0.0	0.0	35.0	35.0	0.0	25.0	25.0	0.0	0.0	25.0	25.0
Act Effct Green (s)					32.0		22.0	22.0			22.0	22.0
Actuated g/C Ratio					0.53		0.37	0.37			0.37	0.37
v/c Ratio					0.46		0.28	0.27			0.10	0.11
Uniform Delay, d1					8.6		13.4	13.3			12.4	7.7
Delay					8.7		11.7	11.5			12.8	9.2
LOS					A		B	B			B	A
Approach Delay					8.7			11.6			11.0	
Approach LOS					A			B			B	

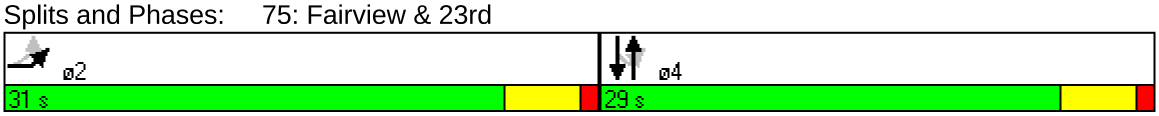
Intersection Summary
Cycle Length: 60
Offset: 15 (25%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 43.5% ICU Level of Service A

Splits and Phases: 74: Main & 23rd

Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	6650	0	0	3522	0	1770	1739	0	0	0
Flt Permitted		0.953					0.623				
Satd. Flow (perm)	0	6650	0	0	3522	0	1160	1739	0	0	0
Satd. Flow (RTOR)		11			7						
Volume (vph)	82	623	17	0	179	6	55	30	0	0	0
Lane Group Flow (vph)	0	802	0	0	206	0	61	33	0	0	0
Turn Type	Perm						Perm				
Protected Phases		2			4			4			
Permitted Phases	2						4				
Total Split (s)	31.0	31.0	0.0	0.0	29.0	0.0	29.0	29.0	0.0	0.0	0.0
Act Effct Green (s)		28.0			26.0		26.0	26.0			
Actuated g/C Ratio		0.47			0.43		0.43	0.43			
v/c Ratio		0.26			0.13		0.12	0.04			
Uniform Delay, d1		9.5			9.9		10.1	9.8			
Delay		20.3			10.0		14.7	13.6			
LOS		C			A		B	B			
Approach Delay		20.3			10.0			14.3			
Approach LOS		C			A			B			

Intersection Summary
Cycle Length: 60
Offset: 49 (82%), Referenced to phase 2:EBL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.26
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 30.6% ICU Level of Service A

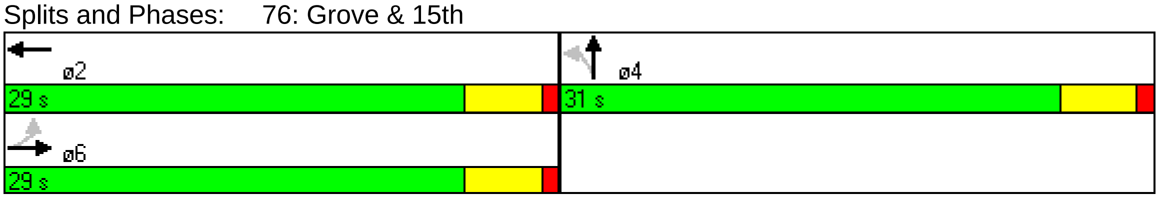
Splits and Phases: 75: Fairview & 23rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1904	0	0	1886	0	0	4877	0	0	0	0
Flt Permitted		0.924						0.997				
Satd. Flow (perm)	0	1779	0	0	1886	0	0	4877	0	0	0	0
Satd. Flow (RTOR)					19			11				
Volume (vph)	18	65	0	0	196	35	55	800	28	0	0	0
Lane Group Flow (vph)	0	92	0	0	257	0	0	981	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		6			2			4				
Permitted Phases	6						4					
Total Split (s)	29.0	29.0	0.0	0.0	29.0	0.0	31.0	31.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		26.0			26.0			28.0				
Actuated g/C Ratio		0.43			0.43			0.47				
v/c Ratio		0.12			0.31			0.43				
Uniform Delay, d1		10.1			10.2			10.5				
Delay		21.0			10.6			10.7				
LOS		C			B			B				
Approach Delay		21.0			10.6			10.7				
Approach LOS		C			B			B				

Intersection Summary
Cycle Length: 60
Offset: 31 (52%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 39.6% ICU Level of Service A

Splits and Phases: 76: Grove & 15th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6369	0	0	2094	0	0	1930	0
Flt Permitted					0.999			0.952				
Satd. Flow (perm)	0	0	0	0	6369	0	0	2010	0	0	1930	0
Satd. Flow (RTOR)					16						3	
Volume (vph)	0	0	0	23	2047	66	22	118	0	0	41	74
Lane Group Flow (vph)	0	0	0	0	2373	0	0	155	0	0	128	0
Turn Type				Perm			Perm					
Protected Phases					2			8			4	
Permitted Phases				2			8					
Total Split (s)	0.0	0.0	0.0	36.0	36.0	0.0	24.0	24.0	0.0	0.0	24.0	0.0
Act Effct Green (s)					33.0			21.0			21.0	
Actuated g/C Ratio					0.55			0.35			0.35	
v/c Ratio					0.68			0.22			0.19	
Uniform Delay, d1					9.6			13.7			13.2	
Delay					7.3			14.1			13.6	
LOS					A			B			B	
Approach Delay					7.3			14.1			13.6	
Approach LOS					A			B			B	

Intersection Summary
Cycle Length: 60
Offset: 11 (18%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 8.0 Intersection LOS: A
Intersection Capacity Utilization 52.9% ICU Level of Service A

Splits and Phases: 77: Main & 30th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6769	0	0	3226	0	0	1773	0
Flt Permitted								0.623				
Satd. Flow (perm)	0	0	0	0	6769	0	0	2051	0	0	1773	0
Satd. Flow (RTOR)					10							
Volume (vph)	0	0	0	27	4122	94	153	227	0	0	107	106
Lane Group Flow (vph)	0	0	0	0	4714	0	0	422	0	0	237	0
Turn Type				Split			Perm					
Protected Phases				2	2			8			4	
Permitted Phases							8					
Total Split (s)	0.0	0.0	0.0	87.0	87.0	0.0	33.0	33.0	0.0	0.0	33.0	0.0
Act Effct Green (s)					84.0			30.0			30.0	
Actuated g/C Ratio					0.70			0.25			0.25	
v/c Ratio					0.99			0.99dl			0.53	
Uniform Delay, d1					17.7			42.5			38.9	
Delay					10.0			46.1			40.0	
LOS					B			D			D	
Approach Delay					10.0			46.1			40.0	
Approach LOS					B			D			D	

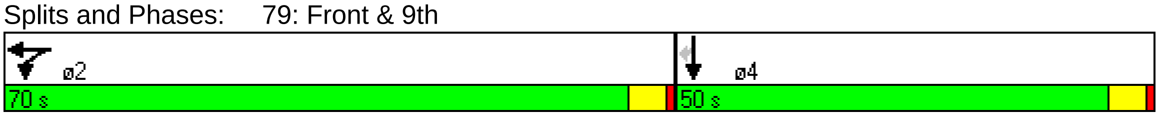
Intersection Summary
Cycle Length: 120
Offset: 30 (25%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 99.1% ICU Level of Service E
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 78: Front & 11th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6756	0	0	0	0	0	5767	1472
Flt Permitted					0.995							
Satd. Flow (perm)	0	0	0	0	6756	0	0	0	0	0	5767	1472
Satd. Flow (RTOR)					9							
Volume (vph)	0	0	0	466	3848	0	0	0	0	0	1222	530
Lane Group Flow (vph)	0	0	0	0	4794	0	0	0	0	0	1358	589
Turn Type				Split								Perm
Protected Phases				2	2						4	
Permitted Phases												4
Total Split (s)	0.0	0.0	0.0	70.0	70.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
Act Effct Green (s)					67.0						47.0	47.0
Actuated g/C Ratio					0.56						0.39	0.39
v/c Ratio					1.27						0.60	1.02
Uniform Delay, d1					26.4						29.0	36.5
Delay					139.9						34.3	74.8
LOS					F						C	E
Approach Delay					139.9						46.6	
Approach LOS					F						D	

Intersection Summary
Cycle Length: 120
Offset: 17 (14%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 113.0 Intersection LOS: F
Intersection Capacity Utilization 109.3% ICU Level of Service F

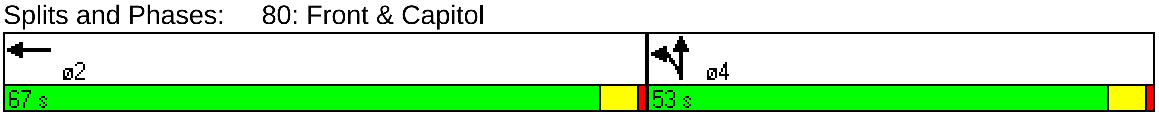
Splits and Phases: 79: Front & 9th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6749	0	1461	4531	0	0	0	0
Flt Permitted							0.950	0.982				
Satd. Flow (perm)	0	0	0	0	6749	0	1461	4531	0	0	0	0
Satd. Flow (RTOR)					12							
Volume (vph)	0	0	0	0	2713	106	1023	900	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	3132	0	569	1568	0	0	0	0
Turn Type							Split					
Protected Phases					2		4	4				
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	67.0	0.0	53.0	53.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					64.0		50.0	50.0				
Actuated g/C Ratio					0.53		0.42	0.42				
v/c Ratio					0.87		0.93	0.83				
Uniform Delay, d1					24.2		33.4	31.2				
Delay					13.0		27.6	24.3				
LOS					B		C	C				
Approach Delay					13.0			25.2				
Approach LOS					B			C				

Intersection Summary
Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:WBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 82.6% ICU Level of Service D

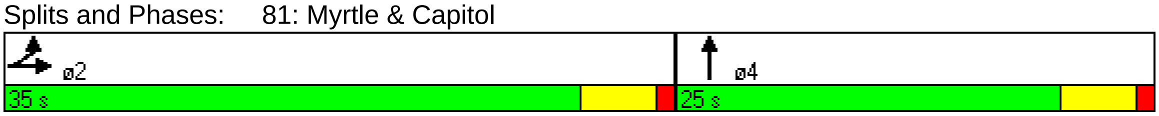
Splits and Phases: 80: Front & Capitol



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1646	5767	0	0	0	0	0	6028	0	0	0	0
Flt Permitted	0.950											
Satd. Flow (perm)	1646	5767	0	0	0	0	0	6028	0	0	0	0
Satd. Flow (RTOR)	1							9				
Volume (vph)	330	1675	0	0	0	0	0	1706	266	0	0	0
Lane Group Flow (vph)	367	1861	0	0	0	0	0	2192	0	0	0	0
Turn Type	Split											
Protected Phases	2	2						4				
Permitted Phases												
Total Split (s)	35.0	35.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0
Act Effct Green (s)	32.0	32.0						22.0				
Actuated g/C Ratio	0.53	0.53						0.37				
v/c Ratio	0.42	0.61						0.99				
Uniform Delay, d1	8.4	9.6						18.8				
Delay	2.5	3.2						29.1				
LOS	A	A						C				
Approach Delay		3.1						29.1				
Approach LOS		A						C				

Intersection Summary
Cycle Length: 60
Offset: 45 (75%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 16.0　　Intersection LOS: B
Intersection Capacity Utilization 72.6%　　ICU Level of Service C

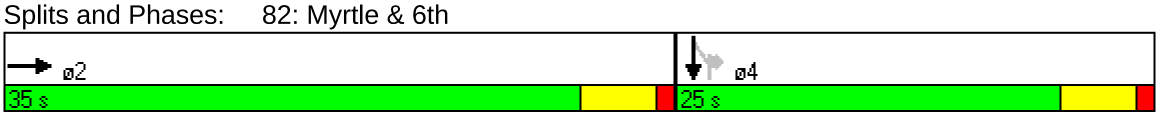
Splits and Phases: 81: Myrtle & Capitol



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	6783	0	0	0	0	0	0	1644	1513	1527	0
Flt Permitted										0.950	0.959	
Satd. Flow (perm)	0	6783	0	0	0	0	0	0	1644	1513	1527	0
Satd. Flow (RTOR)		5							16	16	16	
Volume (vph)	0	1492	14	0	0	0	0	0	32	173	14	0
Lane Group Flow (vph)	0	1674	0	0	0	0	0	0	36	101	107	0
Turn Type									custom	Perm		
Protected Phases		2									4	
Permitted Phases									4	4		
Total Split (s)	0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	25.0	0.0
Act Effct Green (s)		32.0							22.0	22.0	22.0	
Actuated g/C Ratio		0.53							0.37	0.37	0.37	
v/c Ratio		0.46							0.06	0.18	0.19	
Uniform Delay, d1		8.6							6.8	10.7	10.9	
Delay		2.5							8.8	22.1	22.3	
LOS		A							A	C	C	
Approach Delay		2.5						8.8			22.2	
Approach LOS		A						A			C	

Intersection Summary
Cycle Length: 60
Offset: 53 (88%), Referenced to phase 2:EBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 4.8 Intersection LOS: A
Intersection Capacity Utilization 41.3% ICU Level of Service A

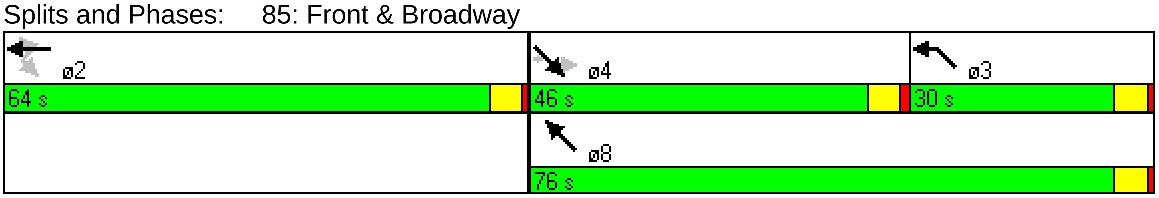
Splits and Phases: 82: Myrtle & 6th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	3529	1583	1863	3539	1583	3433	3539	0
Flt Permitted					0.997					0.950		
Satd. Flow (perm)	0	0	0	0	3529	1583	1863	3539	1583	3433	3539	0
Satd. Flow (RTOR)						79			13			
Volume (vph)	0	0	0	80	1362	350	0	1003	430	505	925	0
Lane Group Flow (vph)	0	0	0	0	1602	389	0	1114	478	561	1028	0
Turn Type				Perm		Perm	Perm		Perm	Prot		
Protected Phases					2			4		3	8	
Permitted Phases				2		2	4		4			
Total Split (s)	0.0	0.0	0.0	64.0	64.0	64.0	46.0	46.0	46.0	30.0	76.0	0.0
Act Effct Green (s)					61.0	61.0		43.0	43.0	27.0	72.9	
Actuated g/C Ratio					0.44	0.44		0.31	0.31	0.19	0.52	
v/c Ratio					1.04	0.53		1.02	0.97	0.85	0.56	
Uniform Delay, d1					39.5	22.4		48.5	46.4	54.5	22.6	
Delay					68.6	23.0		79.6	73.5	47.5	13.7	
LOS					E	C		E	E	D	B	
Approach Delay					59.7			77.8			25.6	
Approach LOS					E			E			C	

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 44 (31%), Referenced to phase 4:SETL and 8:NWT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 54.8 Intersection LOS: D
Intersection Capacity Utilization 101.2% ICU Level of Service F

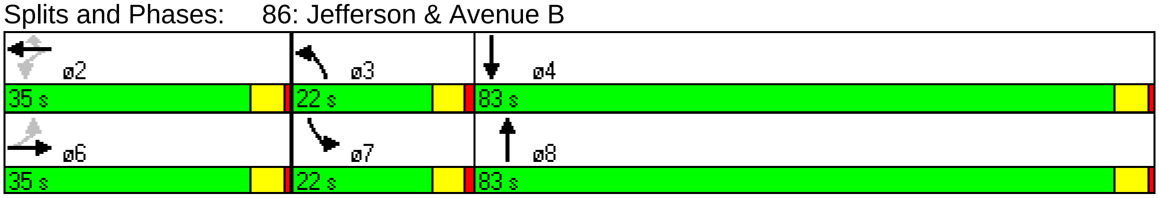
Splits and Phases: 85: Front & Broadway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1776	0	0	1803	1583	1770	3465	0	1770	3440	0
Flt Permitted		0.965			0.658		0.950			0.950		
Satd. Flow (perm)	0	1722	0	0	1226	1583	1770	3465	0	1770	3440	0
Satd. Flow (RTOR)		15				110		22			33	
Volume (vph)	10	53	29	108	54	99	53	851	139	100	584	134
Lane Group Flow (vph)	0	102	0	0	180	110	59	1100	0	111	798	0
Turn Type	Perm			Perm		Perm	custom			custom		
Protected Phases		6			2		3	8		7	4	
Permitted Phases	6			2		2	3			7		
Total Split (s)	35.0	35.0	0.0	35.0	35.0	35.0	22.0	83.0	0.0	22.0	83.0	0.0
Act Effct Green (s)		25.5			25.5	25.5	11.1	90.8		14.7	96.5	
Actuated g/C Ratio		0.18			0.18	0.18	0.08	0.65		0.11	0.69	
v/c Ratio		0.31			0.81	0.29	0.42	0.49		0.60	0.34	
Uniform Delay, d1		42.1			54.9	0.0	62.4	12.3		59.8	8.7	
Delay		40.6			54.2	7.6	69.5	5.0		59.2	9.9	
LOS		D			D	A	E	A		E	A	
Approach Delay		40.6			36.5			8.3			15.9	
Approach LOS		D			D			A			B	

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 1 (1%), Referenced to phase 4:SBT and 8:NBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 63.7% ICU Level of Service B

Splits and Phases: 86: Jefferson & Avenue B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6790	0	0	0	0	0	0	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	6790	0	0	0	0	0	0	0
Satd. Flow (RTOR)												
Volume (vph)	0	0	0	0	3682	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	4091	0	0	0	0	0	0	0
Turn Type												
Protected Phases					2							
Permitted Phases												
Total Split (s)	0.0	0.0	0.0	0.0	115.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act Effct Green (s)					112.0							
Actuated g/C Ratio					0.81							
v/c Ratio					0.75							
Uniform Delay, d1					6.6							
Delay					6.7							
LOS					A							
Approach Delay					6.7							
Approach LOS					A							

Intersection Summary
Cycle Length: 139
Actuated Cycle Length: 139
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 6.7 Intersection LOS: A
Intersection Capacity Utilization 56.0% ICU Level of Service A

Splits and Phases: 88: Front & 8th

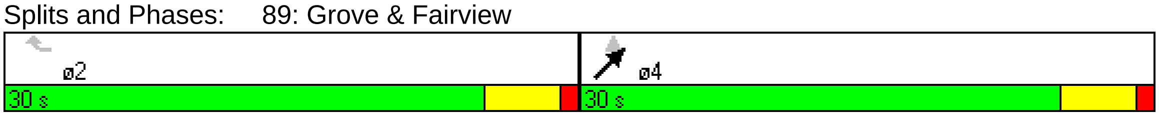
Lane Group	ø4
Lane Configurations	
Total Lost Time (s)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Volume (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Total Split (s)	24.0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Uniform Delay, d1	
Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	WBL	WBR	WBR2	SBL	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	2787	0	0	0	1770	4984	0	0	0	0
Flt Permitted						0.950					
Satd. Flow (perm)	0	2787	0	0	0	1770	4984	0	0	0	0
Satd. Flow (RTOR)		18				41	63				
Volume (vph)	0	220	19	0	0	37	520	81	0	0	0
Lane Group Flow (vph)	0	265	0	0	0	41	668	0	0	0	0
Turn Type		custom				Perm					
Protected Phases							4				
Permitted Phases		2				4					
Total Split (s)	0.0	30.0	0.0	0.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		27.0				27.0	27.0				
Actuated g/C Ratio		0.45				0.45	0.45				
v/c Ratio		0.21				0.05	0.29				
Uniform Delay, d1		9.3				0.0	9.4				
Delay		21.3				19.6	28.3				
LOS		C				B	C				
Approach Delay	21.3						27.8				
Approach LOS	C						C				

Intersection Summary
Cycle Length: 60
Offset: 11 (18%), Referenced to phase 2:WBR, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.29
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 29.1% ICU Level of Service A

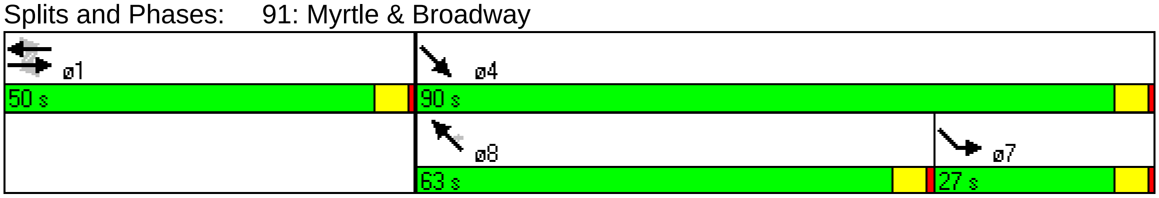
Splits and Phases: 89: Grove & Fairview



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1770	4806	1362	1863	1863	1863	1770	3539	0	0	5085	1583
Flt Permitted	0.757						0.950					
Satd. Flow (perm)	1410	4806	1362	1863	1863	1863	1770	3539	0	0	5085	1583
Satd. Flow (RTOR)			512									21
Volume (vph)	446	1010	708	0	0	0	373	736	0	0	913	55
Lane Group Flow (vph)	496	1122	787	0	0	0	414	818	0	0	1014	61
Turn Type	Perm		Free	Perm		Perm	Prot					Perm
Protected Phases		1			1		7	4			8	
Permitted Phases	1		Free	1		1						8
Total Split (s)	50.0	50.0	0.0	50.0	50.0	50.0	27.0	90.0	0.0	0.0	63.0	63.0
Act Effct Green (s)	47.0	47.0	140.0				23.9	86.9			60.1	60.1
Actuated g/C Ratio	0.34	0.34	1.00				0.17	0.62			0.43	0.43
v/c Ratio	1.05	0.70	0.58				1.37	0.37			0.47	0.09
Uniform Delay, d1	46.5	40.3	0.0				58.0	13.0			28.5	15.4
Delay	89.7	40.6	0.0				175.5	0.8			27.0	17.4
LOS	F	D	A				F	A			C	B
Approach Delay		37.4			0.0			59.6			26.5	
Approach LOS		D			A			E			C	

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 30 (21%), Referenced to phase 4:SET and 8:NWT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 40.7 Intersection LOS: D
Intersection Capacity Utilization 80.1% ICU Level of Service D

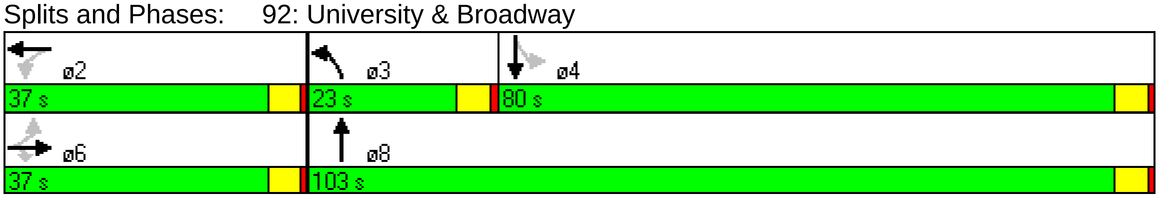
Splits and Phases: 91: Myrtle & Broadway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1770	1863	1583	0	1722	0	1770	3532	0	1770	4984	0
Flt Permitted	0.775				0.916		0.950			0.280		
Satd. Flow (perm)	1444	1863	1583	0	1614	0	1770	3532	0	522	4984	0
Satd. Flow (RTOR)			128		10			3			32	
Volume (vph)	176	6	115	11	3	9	85	906	14	8	1180	179
Lane Group Flow (vph)	196	7	128	0	25	0	94	1023	0	9	1510	0
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		6			2		3	8			4	
Permitted Phases	6		6	2						4		
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	23.0	103.0	0.0	80.0	80.0	0.0
Act Effct Green (s)	24.8	24.8	24.8		24.8		13.7	109.3		92.6	92.6	
Actuated g/C Ratio	0.18	0.18	0.18		0.18		0.10	0.78		0.66	0.66	
v/c Ratio	0.77	0.02	0.33		0.09		0.54	0.37		0.03	0.46	
Uniform Delay, d1	54.9	47.7	0.0		28.7		60.1	4.7		8.1	11.2	
Delay	53.9	43.2	7.0		30.7		59.4	5.3		7.0	6.2	
LOS	D	D	A		C		E	A		A	A	
Approach Delay		35.5			30.7			9.9			6.2	
Approach LOS		D			C			A			A	

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 66 (47%), Referenced to phase 4:SBTL and 8:NBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 11.0 Intersection LOS: B
Intersection Capacity Utilization 62.5% ICU Level of Service B

Splits and Phases: 92: University & Broadway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	1593	5744	0	1540	3185	0	0	1519	0
Flt Permitted				0.950			0.182					
Satd. Flow (perm)	0	0	0	1593	5744	0	295	3185	0	0	1519	0
Satd. Flow (RTOR)					10							
Volume (vph)	0	0	0	131	4289	117	174	383	0	0	102	237
Lane Group Flow (vph)	0	0	0	146	4896	0	193	426	0	0	376	0
Turn Type				Split			Perm					
Protected Phases				2	2			8			4	
Permitted Phases							8					
Total Split (s)	0.0	0.0	0.0	86.0	86.0	0.0	34.0	34.0	0.0	0.0	34.0	0.0
Act Effct Green (s)				83.0	83.0		31.0	31.0			31.0	
Actuated g/C Ratio				0.69	0.69		0.26	0.26			0.26	
v/c Ratio				0.13	1.23		2.54	0.52			0.96	
Uniform Delay, d1				6.3	18.4		44.4	38.1			43.8	
Delay				1.9	113.8		344.1	40.4			66.2	
LOS				A	F		F	D			E	
Approach Delay					110.6			135.1			66.2	
Approach LOS					F			F			E	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 44 (37%), Referenced to phase 2:WBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.54
Intersection Signal Delay: 110.3 Intersection LOS: F
Intersection Capacity Utilization 125.6% ICU Level of Service H

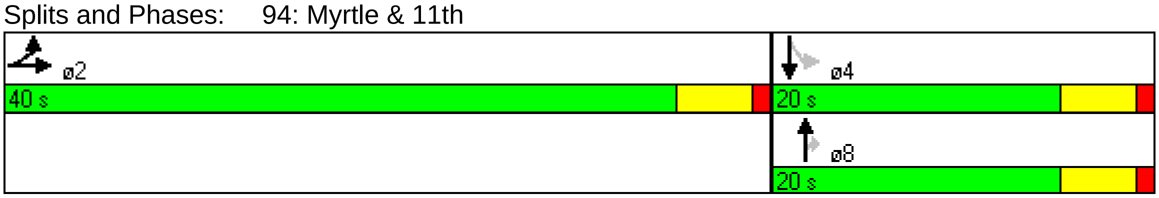
Splits and Phases: 93: Front & 13th

Lanes, Volumes, Timings
94: Myrtle & 11th

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	6763	0	0	0	0	0	1788	1472	0	3093	0
Flt Permitted		0.997									0.773	
Satd. Flow (perm)	0	6763	0	0	0	0	0	1788	1472	0	2462	0
Satd. Flow (RTOR)		3							18			
Volume (vph)	122	1662	8	0	0	0	0	153	20	57	40	0
Lane Group Flow (vph)	0	1992	0	0	0	0	0	170	22	0	107	0
Turn Type	Split								Perm	Perm		
Protected Phases	2	2						8			4	
Permitted Phases									8	4		
Total Split (s)	40.0	40.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0	20.0	0.0
Act Effct Green (s)		37.0						17.0	17.0		17.0	
Actuated g/C Ratio		0.62						0.28	0.28		0.28	
v/c Ratio		0.48						0.34	0.05		0.15	
Uniform Delay, d1		6.2						17.0	2.8		16.1	
Delay		1.9						17.6	9.2		25.3	
LOS		A						B	A		C	
Approach Delay		1.9						16.6			25.3	
Approach LOS		A						B			C	

Intersection Summary
Cycle Length: 60
Offset: 16 (27%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 4.2 | Intersection LOS: A
Intersection Capacity Utilization 49.6% | ICU Level of Service A

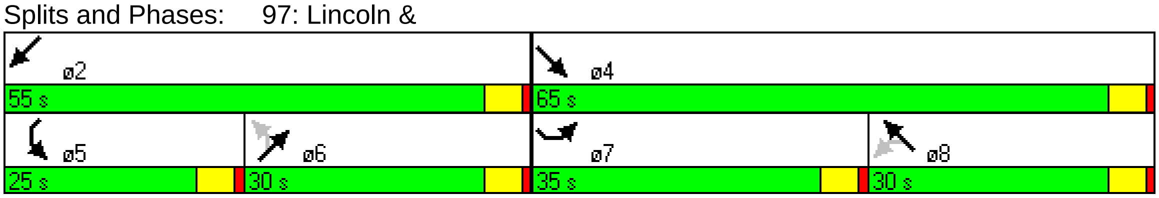
Splits and Phases: 94: Myrtle & 11th



	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1770	1859	0	0	1825	0	0	1695	0	1770	1585	0
Flt Permitted	0.950				0.999			0.910		0.950		
Satd. Flow (perm)	1770	1859	0	0	1824	0	0	1565	0	1770	1585	0
Satd. Flow (RTOR)		1			7			4			526	
Volume (vph)	266	121	2	2	247	43	2	1	4	47	4	473
Lane Group Flow (vph)	296	136	0	0	324	0	0	7	0	52	530	0
Turn Type	Prot			Perm			Perm			Prot		
Protected Phases	7	4			8			6		5	2	
Permitted Phases				8			6					
Total Split (s)	35.0	65.0	0.0	30.0	30.0	0.0	30.0	30.0	0.0	25.0	55.0	0.0
Act Effct Green (s)	16.0	32.7			17.6			8.7		9.0	14.6	
Actuated g/C Ratio	0.28	0.59			0.32			0.16		0.15	0.26	
v/c Ratio	0.60	0.12			0.55			0.03		0.19	0.66	
Uniform Delay, d1	19.5	4.9			16.1			8.7		23.3	0.1	
Delay	20.5	4.8			19.4			25.5		28.8	2.9	
LOS	C	A			B			C		C	A	
Approach Delay		15.6			19.4			25.5			5.3	
Approach LOS		B			B			C			A	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 55.1
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 12.1 Intersection LOS: B
Intersection Capacity Utilization 76.6% ICU Level of Service C

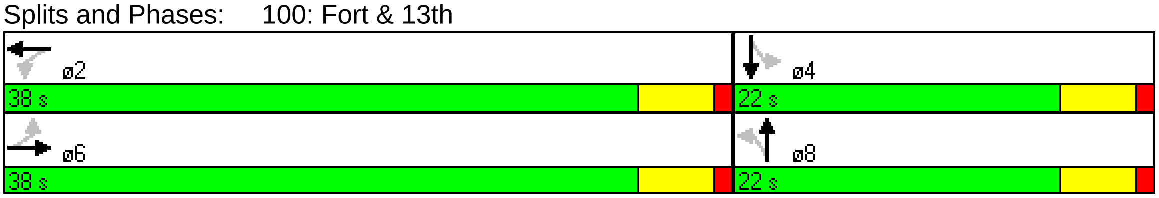
Splits and Phases: 97: Lincoln &



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1711	1987	0	1593	1856	0	1711	1816	0	1711	1953	0
Flt Permitted	0.365			0.662			0.695			0.388		
Satd. Flow (perm)	657	1987	0	1110	1856	0	1251	1816	0	699	1953	0
Satd. Flow (RTOR)					45			17			11	
Volume (vph)	15	135	0	45	366	114	34	243	48	49	76	10
Lane Group Flow (vph)	17	150	0	50	534	0	38	323	0	54	95	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Total Split (s)	38.0	38.0	0.0	38.0	38.0	0.0	22.0	22.0	0.0	22.0	22.0	0.0
Act Effct Green (s)	35.0	35.0		35.0	35.0		19.0	19.0		19.0	19.0	
Actuated g/C Ratio	0.58	0.58		0.58	0.58		0.32	0.32		0.32	0.32	
v/c Ratio	0.04	0.13		0.08	0.49		0.10	0.55		0.24	0.15	
Uniform Delay, d1	5.4	5.6		5.4	6.5		14.4	16.0		15.2	12.9	
Delay	5.6	5.8		4.8	8.4		5.7	5.1		16.2	13.6	
LOS	A	A		A	A		A	A		B	B	
Approach Delay		5.8			8.1			5.1			14.6	
Approach LOS		A			A			A			B	

Intersection Summary
Cycle Length: 60
Offset: 50 (83%), Referenced to phase 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 7.7 Intersection LOS: A
Intersection Capacity Utilization 53.2% ICU Level of Service A

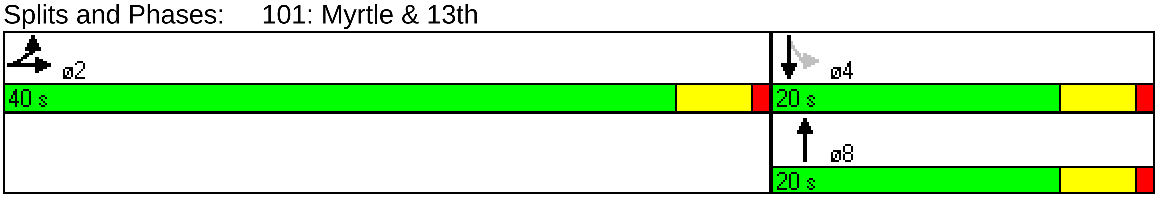
Splits and Phases: 100: Fort & 13th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	6735	0	0	0	0	0	3039	0	1593	1844	0
Flt Permitted		0.993								0.379		
Satd. Flow (perm)	0	6735	0	0	0	0	0	3039	0	635	1844	0
Satd. Flow (RTOR)		5						12				
Volume (vph)	307	1834	16	0	0	0	0	289	128	58	180	0
Lane Group Flow (vph)	0	2397	0	0	0	0	0	463	0	64	200	0
Turn Type	Split									Perm		
Protected Phases	2	2						8			4	
Permitted Phases										4		
Total Split (s)	40.0	40.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	20.0	20.0	0.0
Act Effct Green (s)		37.0						17.0		17.0	17.0	
Actuated g/C Ratio		0.62						0.28		0.28	0.28	
v/c Ratio		0.58						0.53		0.36	0.38	
Uniform Delay, d1		6.8						17.6		17.1	17.3	
Delay		6.9						18.0		15.7	15.5	
LOS		A						B		B	B	
Approach Delay		6.9						18.0			15.6	
Approach LOS		A						B			B	

Intersection Summary
Cycle Length: 60
Offset: 2 (3%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 60.0% ICU Level of Service B

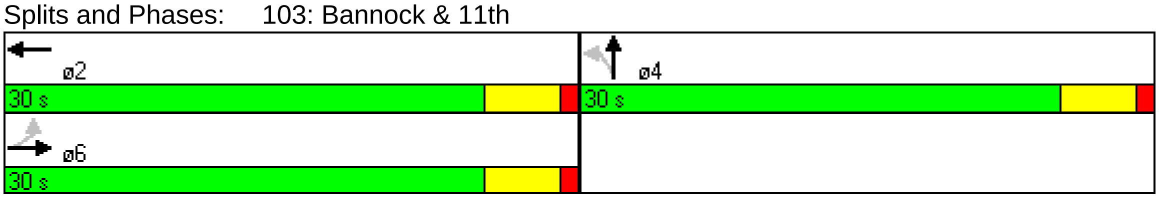
Splits and Phases: 101: Myrtle & 13th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1720	0	0	1648	0	0	4381	0	0	0	0
Flt Permitted		0.940						0.996				
Satd. Flow (perm)	0	1628	0	0	1648	0	0	4381	0	0	0	0
Satd. Flow (RTOR)					15			81				
Volume (vph)	33	188	0	0	165	23	21	186	73	0	0	0
Lane Group Flow (vph)	0	246	0	0	209	0	0	311	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		6			2			4				
Permitted Phases	6						4					
Total Split (s)	30.0	30.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		27.0			27.0			27.0				
Actuated g/C Ratio		0.45			0.45			0.45				
v/c Ratio		0.34			0.28			0.15				
Uniform Delay, d1		10.7			9.5			7.1				
Delay		9.0			1.6			2.8				
LOS		A			A			A				
Approach Delay		9.0			1.6			2.9				
Approach LOS		A			A			A				

Intersection Summary
Cycle Length: 60
Offset: 40 (67%), Referenced to phase 2:WBT and 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.34
Intersection Signal Delay: 4.5 Intersection LOS: A
Intersection Capacity Utilization 43.9% ICU Level of Service A

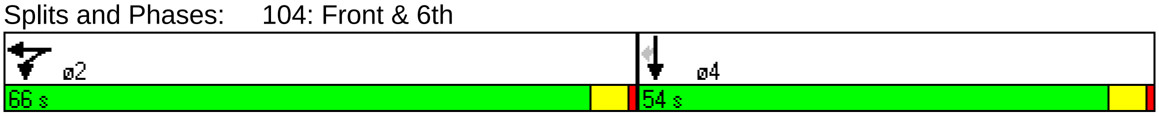
Splits and Phases: 103: Bannock & 11th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6783	0	0	0	0	0	2743	1383
Flt Permitted					0.999							
Satd. Flow (perm)	0	0	0	0	6783	0	0	0	0	0	2743	1383
Satd. Flow (RTOR)					3						2	2
Volume (vph)	0	0	0	26	2155	0	0	0	0	0	173	705
Lane Group Flow (vph)	0	0	0	0	2423	0	0	0	0	0	583	392
Turn Type				Split								Perm
Protected Phases				2	2						4	
Permitted Phases												4
Total Split (s)	0.0	0.0	0.0	66.0	66.0	0.0	0.0	0.0	0.0	0.0	54.0	54.0
Act Effct Green (s)					63.0						51.0	51.0
Actuated g/C Ratio					0.53						0.43	0.43
v/c Ratio					0.68						0.50	0.67
Uniform Delay, d1					21.0						25.1	27.5
Delay					15.8						26.3	30.0
LOS					B						C	C
Approach Delay					15.8						27.8	
Approach LOS					B						C	

Intersection Summary
Cycle Length: 120
Offset: 27 (23%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 19.3 Intersection LOS: B
Intersection Capacity Utilization 73.8% ICU Level of Service C

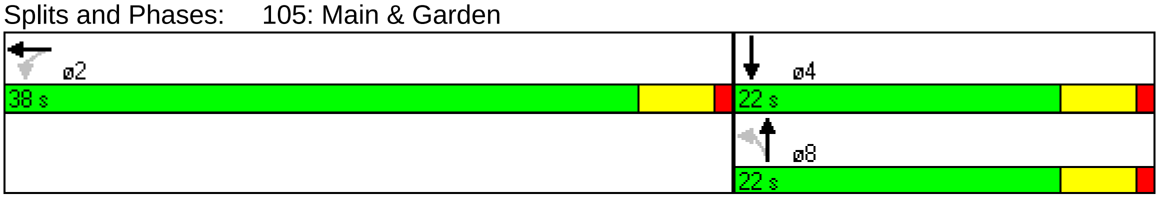
Splits and Phases: 104: Front & 6th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	6395	0	1770	1925	0	0	1915	0
Flt Permitted							0.699					
Satd. Flow (perm)	0	0	0	0	6395	0	1302	1925	0	0	1915	0
Satd. Flow (RTOR)					6						4	
Volume (vph)	0	0	0	15	2094	25	120	15	0	0	25	56
Lane Group Flow (vph)	0	0	0	0	2372	0	133	17	0	0	90	0
Turn Type				Perm			Perm					
Protected Phases					2			8			4	
Permitted Phases				2			8					
Total Split (s)	0.0	0.0	0.0	38.0	38.0	0.0	22.0	22.0	0.0	0.0	22.0	0.0
Act Effct Green (s)					35.0		19.0	19.0			19.0	
Actuated g/C Ratio					0.58		0.32	0.32			0.32	
v/c Ratio					0.64		0.32	0.03			0.15	
Uniform Delay, d1					8.2		15.6	14.1			14.0	
Delay					1.0		16.3	14.3			14.5	
LOS					A		B	B			B	
Approach Delay					1.0			16.1			14.5	
Approach LOS					A			B			B	

Intersection Summary
Cycle Length: 60
Offset: 31 (52%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 2.3 Intersection LOS: A
Intersection Capacity Utilization 55.2% ICU Level of Service A

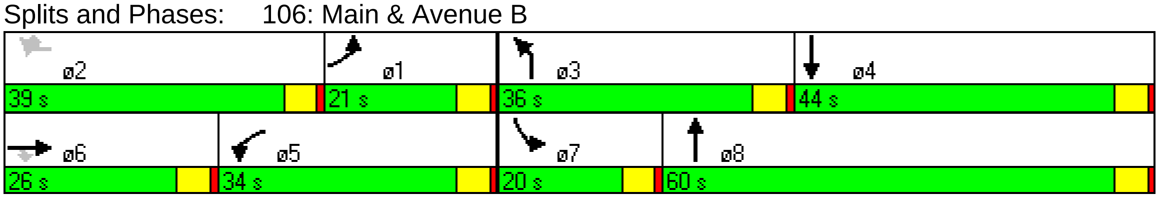
Splits and Phases: 105: Main & Garden



	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1770	1863	1583	1770	0	2787	1583	1770	3440	0	1770	3483
Flt Permitted	0.950			0.950				0.950			0.950	
Satd. Flow (perm)	1770	1863	1583	1770	0	2787	1583	1770	3440	0	1770	3483
Satd. Flow (RTOR)			577				166		23			9
Volume (vph)	123	305	520	254	0	174	149	164	852	192	163	172
Lane Group Flow (vph)	137	339	578	282	0	193	166	182	1160	0	181	214
Turn Type	Prot		Perm	custom		custom	custom	custom			custom	
Protected Phases	1	6		5				3	8		7	4
Permitted Phases			6	5		2	2	3			7	
Total Split (s)	21.0	26.0	26.0	34.0	0.0	39.0	39.0	36.0	60.0	0.0	20.0	44.0
Act Effct Green (s)	34.4	23.0	23.0	26.8		15.3	15.3	20.4	61.6		16.6	57.8
Actuated g/C Ratio	0.25	0.16	0.16	0.19		0.11	0.11	0.15	0.44		0.12	0.41
v/c Ratio	0.31	1.11	0.78	0.83		0.63	0.52	0.71	0.76		0.86	0.15
Uniform Delay, d1	43.1	58.5	0.1	54.4		59.5	0.0	56.9	32.3		60.5	24.6
Delay	43.3	121.8	4.3	54.1		59.1	7.8	47.4	49.5		81.8	21.4
LOS	D	F	A	D		E	A	D	D		F	C
Approach Delay		47.2			43.6				49.2			49.1
Approach LOS		D			D				D			D

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 13 (9%), Referenced to phase 4:SBT and 8:NBT, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 47.5 Intersection LOS: D
Intersection Capacity Utilization 89.8% ICU Level of Service D

Splits and Phases: 106: Main & Avenue B



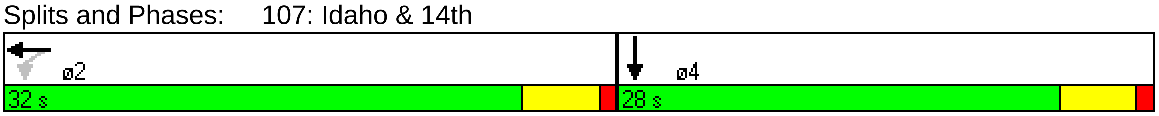
Lane Group	SBR2	SEL
Lane Configurations		
Total Lost Time (s)	3.0	3.0
Satd. Flow (prot)	0	0
Flt Permitted		
Satd. Flow (perm)	0	0
Satd. Flow (RTOR)		
Volume (vph)	21	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Total Split (s)	0.0	0.0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Uniform Delay, d1		
Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	5070	0	0	0	0	0	3182	0
Flt Permitted					0.997							
Satd. Flow (perm)	0	0	0	0	5070	0	0	0	0	0	3182	0
Satd. Flow (RTOR)					27						84	
Volume (vph)	0	0	0	63	837	0	0	0	0	0	42	88
Lane Group Flow (vph)	0	0	0	0	1000	0	0	0	0	0	145	0
Turn Type				Perm								
Protected Phases					2						4	
Permitted Phases				2								
Total Split (s)	0.0	0.0	0.0	32.0	32.0	0.0	0.0	0.0	0.0	0.0	28.0	0.0
Act Effct Green (s)					29.0						25.0	
Actuated g/C Ratio					0.48						0.42	
v/c Ratio					0.41						0.11	
Uniform Delay, d1					9.7						4.4	
Delay					1.9						5.3	
LOS					A						A	
Approach Delay					1.9						5.3	
Approach LOS					A						A	

Intersection Summary
Cycle Length: 60
Offset: 43 (72%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 2.3 Intersection LOS: A
Intersection Capacity Utilization 30.5% ICU Level of Service A

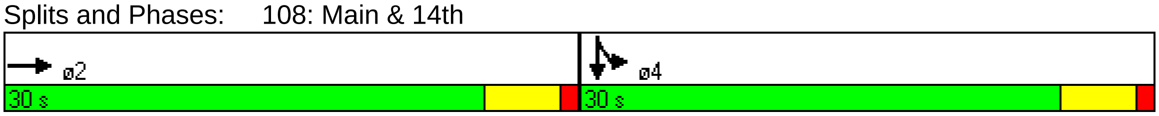
Splits and Phases: 107: Idaho & 14th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	5060	0	0	0	0	0	0	0	0	1805	0
Flt Permitted											0.969	
Satd. Flow (perm)	0	5060	0	0	0	0	0	0	0	0	1805	0
Satd. Flow (RTOR)		10									73	
Volume (vph)	0	600	20	0	0	0	0	0	0	66	38	0
Lane Group Flow (vph)	0	689	0	0	0	0	0	0	0	0	115	0
Turn Type										Split		
Protected Phases		2								4	4	
Permitted Phases												
Total Split (s)	0.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	0.0
Act Effct Green (s)		27.0									27.0	
Actuated g/C Ratio		0.45									0.45	
v/c Ratio		0.30									0.13	
Uniform Delay, d1		10.3									3.4	
Delay		5.4									6.7	
LOS		A									A	
Approach Delay		5.4									6.7	
Approach LOS		A									A	

Intersection Summary
Cycle Length: 60
Offset: 42 (70%), Referenced to phase 2:EBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.30
Intersection Signal Delay: 5.6 Intersection LOS: A
Intersection Capacity Utilization 26.3% ICU Level of Service A

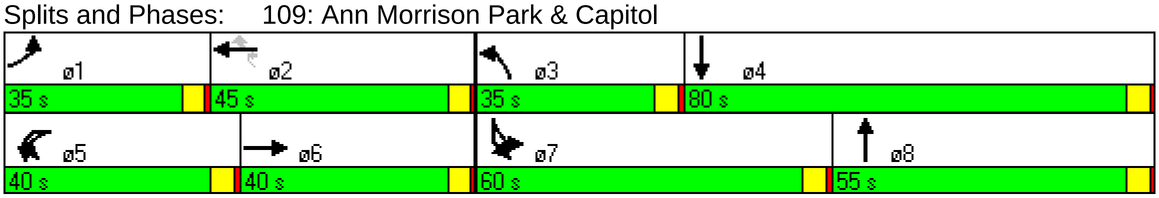
Splits and Phases: 108: Main & 14th



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL2
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1770	3161	0	0	0	3433	1552	1504	1770	5024	0	1522
Flt Permitted	0.950					0.950			0.950			0.950
Satd. Flow (perm)	1770	3161	0	0	0	3433	1552	1504	1770	5024	0	1522
Satd. Flow (RTOR)		73					106	358				
Volume (vph)	182	41	38	66	10	221	45	525	86	1215	104	524
Lane Group Flow (vph)	202	161	0	0	0	257	275	358	96	1466	0	483
Turn Type	Prot				Prot	Prot		Perm	Prot			Prot
Protected Phases	1	6			5	5	2		3	8		7
Permitted Phases								2				
Total Split (s)	35.0	40.0	0.0	0.0	40.0	40.0	45.0	45.0	35.0	55.0	0.0	60.0
Act Effct Green (s)	25.0	32.3				19.0	26.3	26.3	15.6	52.5		57.5
Actuated g/C Ratio	0.14	0.19				0.11	0.15	0.15	0.09	0.30		0.33
v/c Ratio	0.79	0.25				0.68	0.85	0.67	0.60	0.96		0.96
Uniform Delay, d1	71.7	32.2				74.2	43.3	0.0	75.9	59.5		56.6
Delay	73.1	31.3				75.6	43.4	5.5	78.2	82.1		89.8
LOS	E	C				E	D	A	E	F		F
Approach Delay		54.5					37.5			81.9		
Approach LOS		D					D			F		

Intersection Summary
Cycle Length: 195
Actuated Cycle Length: 173.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 59.5 Intersection LOS: E
Intersection Capacity Utilization 96.0% ICU Level of Service E

Splits and Phases: 109: Ann Morrison Park & Capitol



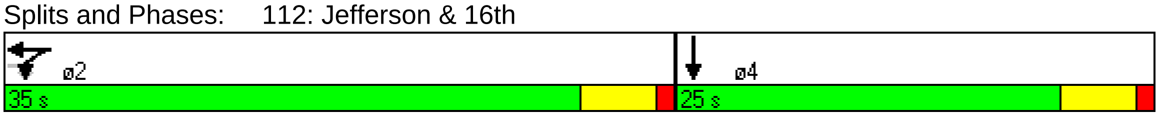
Lane Group	SBL	SBT	SBR	NWL	NWR2
Lane Configurations					
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1681	5070	0	0	1611
Flt Permitted	0.950				
Satd. Flow (perm)	1681	5070	0	0	1611
Satd. Flow (RTOR)		2			522
Volume (vph)	391	1137	27	0	23
Lane Group Flow (vph)	533	1293	0	0	26
Turn Type	Prot				custom
Protected Phases	7	4			
Permitted Phases					2
Total Split (s)	60.0	80.0	0.0	0.0	45.0
Act Effct Green (s)	57.5	94.4			26.3
Actuated g/C Ratio	0.33	0.54			0.15
v/c Ratio	0.96	0.47			0.04
Uniform Delay, d1	56.6	24.0			0.0
Delay	88.2	27.0			0.0
LOS	F	C			A
Approach Delay		54.3		0.0	
Approach LOS		D		A	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	1611	1681	1707	0	0	0	0	0	3511	0
Flt Permitted				0.950	0.998							
Satd. Flow (perm)	0	0	1611	1681	1707	0	0	0	0	0	3511	0
Satd. Flow (RTOR)			69	69	6						10	
Volume (vph)	0	0	44	314	292	0	0	0	0	0	683	36
Lane Group Flow (vph)	0	0	49	334	339	0	0	0	0	0	799	0
Turn Type			custom	Split								
Protected Phases				2	2						4	
Permitted Phases			2									
Total Split (s)	0.0	0.0	35.0	35.0	35.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0
Act Effct Green (s)			32.0	32.0	32.0						22.0	
Actuated g/C Ratio			0.53	0.53	0.53						0.37	
v/c Ratio			0.05	0.36	0.37						0.62	
Uniform Delay, d1			0.0	6.2	8.0						15.3	
Delay			1.5	3.1	5.2						9.2	
LOS			A	A	A						A	
Approach Delay		1.5			4.2						9.2	
Approach LOS		A			A						A	

Intersection Summary
Cycle Length: 60
Offset: 46 (77%), Referenced to phase 2:WBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 6.7 Intersection LOS: A
Intersection Capacity Utilization 53.8% ICU Level of Service A

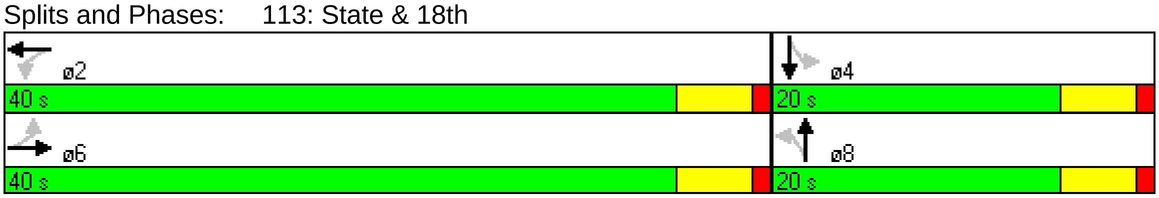
Splits and Phases: 112: Jefferson & 16th



	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1711	3529	0	1711	3532	0	1711	1783	0	1711	1786	0
Flt Permitted	0.108			0.315			0.725			0.708		
Satd. Flow (perm)	194	3529	0	567	3532	0	1305	1783	0	1275	1786	0
Satd. Flow (RTOR)		6			4			22			33	
Volume (vph)	29	698	14	10	1341	20	146	49	20	22	14	30
Lane Group Flow (vph)	32	792	0	11	1512	0	162	76	0	24	49	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			8			4	
Permitted Phases	6			2			8			4		
Total Split (s)	40.0	40.0	0.0	40.0	40.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0
Act Effct Green (s)	37.0	37.0		37.0	37.0		17.0	17.0		17.0	17.0	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.28	0.28		0.28	0.28	
v/c Ratio	0.27	0.36		0.03	0.69		0.44	0.15		0.07	0.09	
Uniform Delay, d1	5.3	5.6		4.5	7.7		17.6	11.3		15.7	5.1	
Delay	6.8	5.7		1.7	3.7		18.4	12.7		16.1	8.8	
LOS	A	A		A	A		B	B		B	A	
Approach Delay		5.8			3.7			16.6			11.2	
Approach LOS		A			A			B			B	

Intersection Summary
Cycle Length: 60
Offset: 12 (20%), Referenced to phase 6:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 5.7 Intersection LOS: A
Intersection Capacity Utilization 64.2% ICU Level of Service B

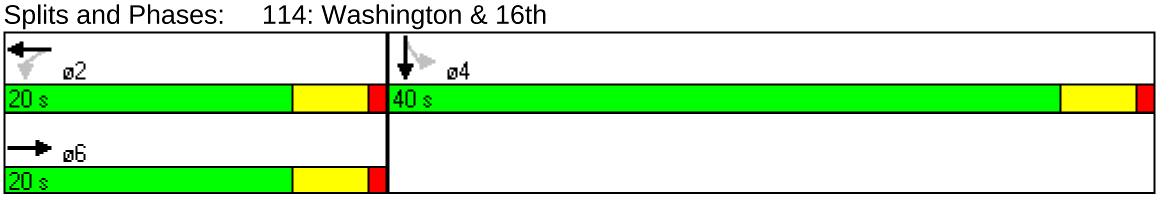
Splits and Phases: 113: State & 18th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1675	0	0	1812	0	0	0	0	0	3504	0
Flt Permitted					0.874						0.999	
Satd. Flow (perm)	0	1675	0	0	1628	0	0	0	0	0	3504	0
Satd. Flow (RTOR)		38									20	
Volume (vph)	0	12	34	20	15	0	0	0	0	10	310	20
Lane Group Flow (vph)	0	51	0	0	39	0	0	0	0	0	377	0
Turn Type				Perm						Perm		
Protected Phases		6			2						4	
Permitted Phases				2						4		
Total Split (s)	0.0	20.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0	40.0	40.0	0.0
Act Effct Green (s)		17.0			17.0						37.0	
Actuated g/C Ratio		0.28			0.28						0.62	
v/c Ratio		0.10			0.08						0.17	
Uniform Delay, d1		4.0			15.8						4.6	
Delay		8.1			16.1						4.7	
LOS		A			B						A	
Approach Delay		8.1			16.1						4.7	
Approach LOS		A			B						A	

Intersection Summary
Cycle Length: 60
Offset: 6 (10%), Referenced to phase 4:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.17
Intersection Signal Delay: 6.0 Intersection LOS: A
Intersection Capacity Utilization 20.6% ICU Level of Service A

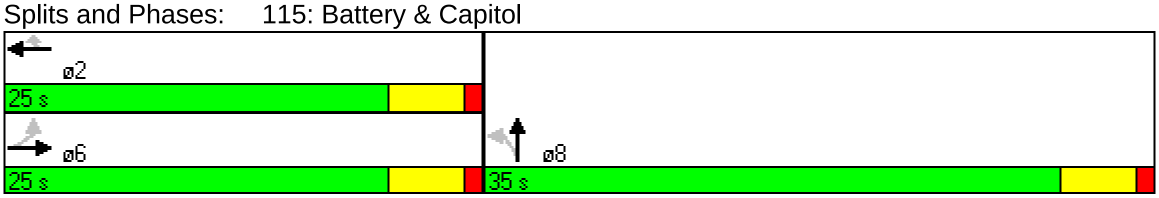
Splits and Phases: 114: Washington & 16th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1699	1900	0	0	1844	1568	0	6084	0	0	0	0
Flt Permitted	0.724							0.990				
Satd. Flow (perm)	1295	1900	0	0	1844	1568	0	6084	0	0	0	0
Satd. Flow (RTOR)						12		3				
Volume (vph)	207	52	0	0	45	34	424	1582	13	0	0	0
Lane Group Flow (vph)	230	58	0	0	50	38	0	2243	0	0	0	0
Turn Type	Perm					Perm	Perm					
Protected Phases		6			2			8				
Permitted Phases	6					2	8					
Total Split (s)	25.0	25.0	0.0	0.0	25.0	25.0	35.0	35.0	0.0	0.0	0.0	0.0
Act Effct Green (s)	16.2	16.2			16.2	16.2		37.8				
Actuated g/C Ratio	0.27	0.27			0.27	0.27		0.63				
v/c Ratio	0.66	0.11			0.10	0.09		0.59				
Uniform Delay, d1	19.4	16.5			16.4	11.1		6.5				
Delay	15.1	10.7			14.3	10.6		7.5				
LOS	B	B			B	B		A				
Approach Delay		14.2			12.7			7.5				
Approach LOS		B			B			A				

Intersection Summary
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 12 (20%), Referenced to phase 8:NBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 8.4 Intersection LOS: A
Intersection Capacity Utilization 64.0% ICU Level of Service B

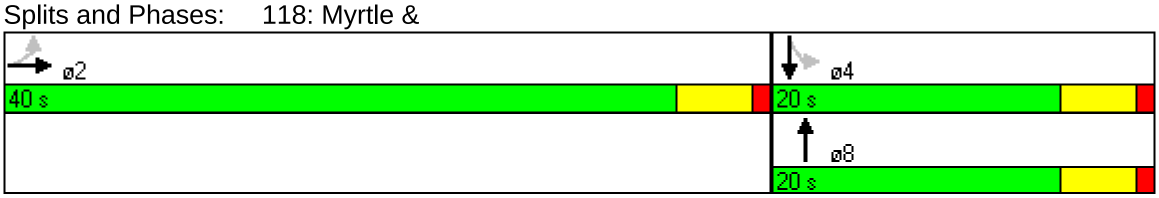
Splits and Phases: 115: Battery & Capitol



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	6769	0	0	0	0	0	1731	0	0	1677	0
Flt Permitted		0.999									0.829	
Satd. Flow (perm)	0	6769	0	0	0	0	0	1731	0	0	1436	0
Satd. Flow (RTOR)		8						19				
Volume (vph)	27	1645	20	0	0	0	0	15	30	40	20	0
Lane Group Flow (vph)	0	1880	0	0	0	0	0	50	0	0	66	0
Turn Type	Perm									Perm		
Protected Phases		2						8			4	
Permitted Phases	2									4		
Total Split (s)	40.0	40.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	20.0	20.0	0.0
Act Effct Green (s)		37.0						17.0			17.0	
Actuated g/C Ratio		0.62						0.28			0.28	
v/c Ratio		0.45						0.10			0.16	
Uniform Delay, d1		6.1						9.7			16.1	
Delay		1.4						11.6			16.6	
LOS		A						B			B	
Approach Delay		1.4						11.6			16.6	
Approach LOS		A						B			B	

Intersection Summary
Cycle Length: 60
Offset: 37 (62%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 2.1	Intersection LOS: A
Intersection Capacity Utilization 36.0%	ICU Level of Service A

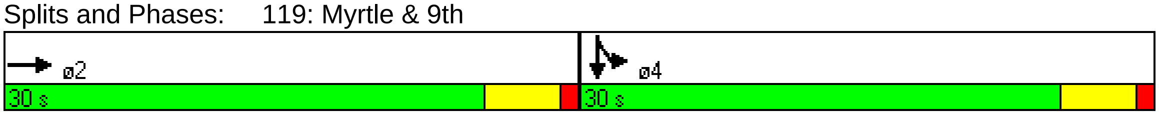
Splits and Phases: 118: Myrtle &



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	6491	0	0	0	0	0	0	0	0	5732	0
Flt Permitted											0.994	
Satd. Flow (perm)	0	6491	0	0	0	0	0	0	0	0	5732	0
Satd. Flow (RTOR)		6									6	
Volume (vph)	0	1503	622	0	0	0	0	0	0	224	1538	0
Lane Group Flow (vph)	0	2361	0	0	0	0	0	0	0	0	1958	0
Turn Type										Split		
Protected Phases		2								4	4	
Permitted Phases												
Total Split (s)	0.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	30.0	0.0
Act Effct Green (s)		27.0									27.0	
Actuated g/C Ratio		0.45									0.45	
v/c Ratio		1.05dr									0.76	
Uniform Delay, d1		14.2									13.7	
Delay		8.6									20.9	
LOS		A									C	
Approach Delay		8.6									20.9	
Approach LOS		A									C	

Intersection Summary
Cycle Length: 60
Offset: 30 (50%), Referenced to phase 2:EBT, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 70.2% ICU Level of Service C
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

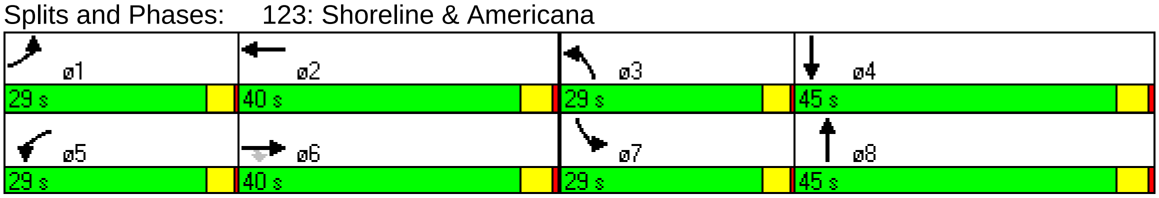
Splits and Phases: 119: Myrtle & 9th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	1770	1863	1583	1770	3337	0	1770	3440	0	1770	3221	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1863	1583	1770	3337	0	1770	3440	0	1770	3221	0
Satd. Flow (RTOR)			69		88			20			232	
Volume (vph)	159	440	81	29	559	342	131	131	31	153	138	209
Lane Group Flow (vph)	177	489	90	32	1001	0	146	180	0	170	385	0
Turn Type	custom		Perm	custom			custom			custom		
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	1		6	5			3			7		
Total Split (s)	29.0	40.0	40.0	29.0	40.0	0.0	29.0	45.0	0.0	29.0	45.0	0.0
Act Effct Green (s)	14.0	48.5	48.5	7.2	37.7		12.6	10.6		13.6	14.1	
Actuated g/C Ratio	0.16	0.55	0.55	0.08	0.43		0.14	0.12		0.15	0.16	
v/c Ratio	0.63	0.48	0.10	0.23	0.68		0.59	0.42		0.62	0.54	
Uniform Delay, d1	36.1	13.2	2.3	41.2	18.2		38.1	32.2		36.2	13.5	
Delay	36.0	15.5	5.6	42.3	21.0		37.3	33.6		36.2	15.2	
LOS	D	B	A	D	C		D	C		D	B	
Approach Delay		19.1			21.7			35.3			21.7	
Approach LOS		B			C			D			C	

Intersection Summary
Cycle Length: 143
Actuated Cycle Length: 88.1
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 22.6 Intersection LOS: C
Intersection Capacity Utilization 72.2% ICU Level of Service C

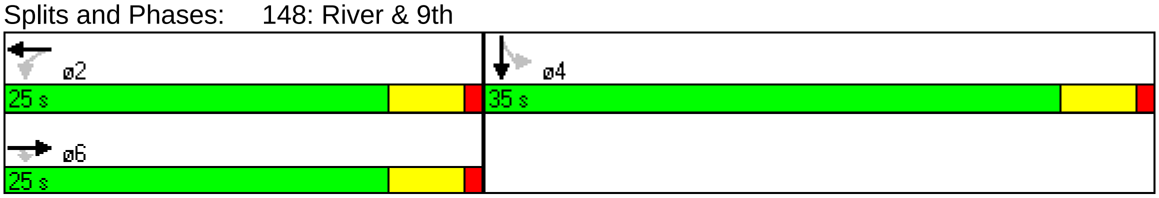
Splits and Phases: 123: Shoreline & Americana



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1732	1472	1593	1732	0	0	0	0	0	5681	0
Flt Permitted				0.555							0.997	
Satd. Flow (perm)	0	1732	1472	930	1732	0	0	0	0	0	5681	0
Satd. Flow (RTOR)			16								47	
Volume (vph)	0	199	639	109	539	0	0	0	0	86	1486	132
Lane Group Flow (vph)	0	221	710	121	599	0	0	0	0	0	1894	0
Turn Type			Perm	Perm						Perm		
Protected Phases		6			2						4	
Permitted Phases			6	2						4		
Total Split (s)	0.0	25.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	35.0	35.0	0.0
Act Effct Green (s)		22.0	22.0	22.0	22.0						32.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37						0.53	
v/c Ratio		0.35	1.29	0.35	0.94						0.62	
Uniform Delay, d1		13.8	18.4	13.8	18.4						9.5	
Delay		14.3	128.4	15.5	35.7						17.4	
LOS		B	F	B	D						B	
Approach Delay		101.3			32.3						17.4	
Approach LOS		F			C						B	

Intersection Summary
Cycle Length: 60
Offset: 45 (75%), Referenced to phase 4:SBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 42.4 Intersection LOS: D
Intersection Capacity Utilization 97.2% ICU Level of Service E

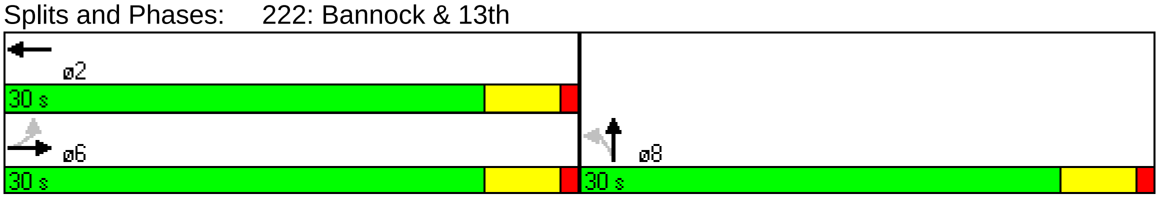
Splits and Phases: 148: River & 9th



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	1665	0	0	1693	0	0	3323	0	0	0	0
Flt Permitted		0.959						0.997				
Satd. Flow (perm)	0	1608	0	0	1693	0	0	3323	0	0	0	0
Satd. Flow (RTOR)					22			35				
Volume (vph)	15	100	0	0	150	31	32	423	67	0	0	0
Lane Group Flow (vph)	0	128	0	0	201	0	0	580	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		6			2			8				
Permitted Phases	6						8					
Total Split (s)	30.0	30.0	0.0	0.0	30.0	0.0	30.0	30.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		27.0			27.0			27.0				
Actuated g/C Ratio		0.45			0.45			0.45				
v/c Ratio		0.18			0.26			0.38				
Uniform Delay, d1		9.8			9.0			10.2				
Delay		10.2			3.0			22.0				
LOS		B			A			C				
Approach Delay		10.2			3.0			22.0				
Approach LOS		B			A			C				

Intersection Summary
Cycle Length: 60
Offset: 40 (67%), Referenced to phase 8:NBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.38
Intersection Signal Delay: 16.2 Intersection LOS: B
Intersection Capacity Utilization 37.0% ICU Level of Service A

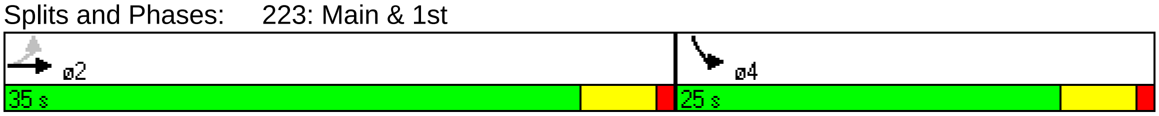
Splits and Phases: 222: Bannock & 13th



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	3768	0	0	1947	0
Flt Permitted		0.998			0.950	
Satd. Flow (perm)	0	3768	0	0	1947	0
Satd. Flow (RTOR)						
Volume (vph)	34	725	0	0	109	0
Lane Group Flow (vph)	0	844	0	0	121	0
Turn Type	Perm					
Protected Phases		2			4	
Permitted Phases	2					
Total Split (s)	35.0	35.0	0.0	0.0	25.0	0.0
Act Effct Green (s)		32.0			22.0	
Actuated g/C Ratio		0.53			0.37	
v/c Ratio		0.42			0.17	
Uniform Delay, d1		8.4			12.8	
Delay		8.9			13.2	
LOS		A			B	
Approach Delay		8.9			13.2	
Approach LOS		A			B	

Intersection Summary
Cycle Length: 60
Offset: 18 (30%), Referenced to phase 2:EBTL, Start of Green
Control Type: Pretimed
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 9.4 Intersection LOS: A
Intersection Capacity Utilization 36.7% ICU Level of Service A

Splits and Phases: 223: Main & 1st



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Satd. Flow (prot)	0	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	3433	0
Volume (vph)	0	0	0	1160	260	0
Lane Group Flow (vph)	0	0	0	1289	289	0
Sign Control	Stop			Stop	Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 50.5%	ICU Level of Service A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Satd. Flow (prot)	0	0	0	0	7499	0	0	1829	0	0	1885	0
Flt Permitted					0.999			0.393				
Satd. Flow (perm)	0	0	0	0	7499	0	0	732	0	0	1885	0
Satd. Flow (RTOR)					16						8	
Volume (vph)	0	0	0	30	2353	77	61	104	0	0	115	168
Lane Group Flow (vph)	0	0	0	0	2733	0	0	184	0	0	315	0
Turn Type				Perm			Perm					
Protected Phases					2			8			4	
Permitted Phases				2			8					
Total Split (s)	0.0	0.0	0.0	90.0	90.0	0.0	30.0	30.0	0.0	0.0	30.0	0.0
Act Effct Green (s)					87.0			27.0			27.0	
Actuated g/C Ratio					0.73			0.23			0.23	
v/c Ratio					0.50			1.12			0.73	
Uniform Delay, d1					7.1			46.5			42.0	
Delay					7.1			124.6			43.7	
LOS					A			F			D	
Approach Delay					7.1			124.6			43.7	
Approach LOS					A			F			D	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 10 (8%), Referenced to phase 2:WBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 69.9% ICU Level of Service B

Splits and Phases: 298: Front & 3rd

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Satd. Flow (prot)	0	0	0	3539	3433	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	3433	0
Volume (vph)	0	0	0	650	375	0
Lane Group Flow (vph)	0	0	0	722	417	0
Sign Control	Stop			Stop	Stop	

Intersection Summary
Control Type: Unsignalized
Intersection Capacity Utilization 38.5% ICU Level of Service A

Appendix D. Intelligent Transportation Systems: Data Collection Notes

Data collection for the ITS element consisted primarily of discussions with Ada County Highway District personnel working in the Traffic Management Center. ACHD has responsibility for street operations and maintenance in the downtown area and also owns and operates the TMC. The discussions were held in conjunction with a meeting at the TMC to observe capabilities and infrastructure. This first hand experience accompanied by explanations of the features and functions by the center manager and operators at the TMC provided an understanding of the center's greater impacts beyond the downtown area and the activities being conducted that specifically address downtown. Others contacted included:

- Six Mile Engineering – regarding traffic signal work
- Boise Fire Department – regarding traffic signal preemption function

In addition, field visits were made to observe ITS elements deployed in place.

Appendix E. Freight: Data Collection Notes

To understand freight movement and truck issues in downtown Boise a variety of data was collected. Site investigations were conducted throughout the study area to identify and locate truck related infrastructure and to observe trucks operating in the area. These direct investigations were conducted over a three-day period. Identification of the infrastructure elements cannot be considered all-inclusive due to the brief timeframe during which the data was collected, however, the information presents a general understanding of operations and features in the downtown area. Documentation included photographing and mapping of infrastructure elements and trucks in service, as well as field and telephone contact notations. Some documentation regarding proposed truck routes and pertinent Boise municipal codes was collected as a result of telephone contacts.

Site visits were conducted during the week of October 13, 2003 and telephone interviews were conducted over the subsequent three weeks. Telephone contacts were made to local businesses, delivery companies, vendors, trucking firms, and local government personnel to identify issues and problem areas, understand operations and levels of use, explore policy and restrictions pertaining to truck movements, and solicit comments toward potential improvements.

Individuals at the following businesses and agencies were contacted:

- Community Planning Association of Southwest Idaho(COMPASS)
- Ada County Highway District
- Boise State University
- United States Post Office
- City of Boise
- Boise Police Department
- Boise City Parking Control
- Capital City Development Corporation (CCDC)
- Boise Centre on the Grove
- Saint Luke's Hospital
- Meadow Gold Dairy
- WINCO
- Browning-Ferris Industries (BFI)
- Boise Cold Storage
- Downtown Storage Center
- Big Easy Concert House
- Graybar
- NORCO
- Albertsons
- GI Trucking
- Sysco Food Services of Idaho
- Stein Distributing
- Trio Beverage
- Nagel Beverage
- Coors Distributing
- United Parcel Service
- Treasure Valley Coffee

Traffic counts with categorized data based on vehicle classification have not historically been collected throughout most of the study area, particularly those areas that are critical from a mobility standpoint. Discussions with telephone contacts revealed that the service industry businesses generate few truck trips on an individual basis but collectively generate the majority of the truck traffic in downtown Boise.

Appendix F. Freight: Photos of Interest

Photo F.1 St Lukes Medical Center

Photo F.2 Truck loading activity on 14th Street

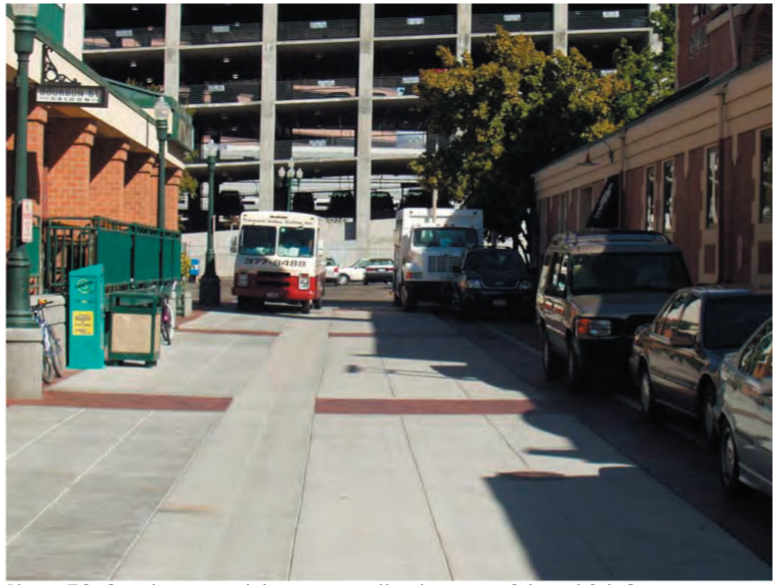


Photo F.3 Simultaneous deliveries on alley between 8th and 9th Street

Photo F.4 Off street loading docks between 13th & 14th


Photo F.5 ???


Photo F.6 ???