

Fairview Ave. and Main St. Improvements and Local Streets Plan

Prepared for:

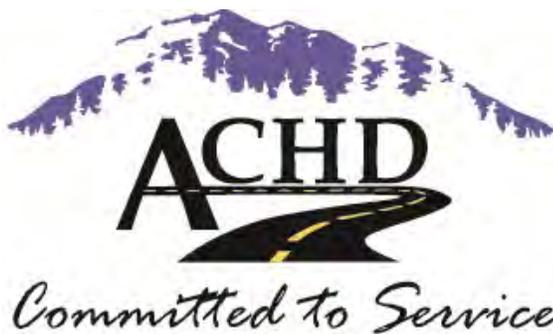
Ada County Highway District

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Boise, Idaho

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Executive Summary

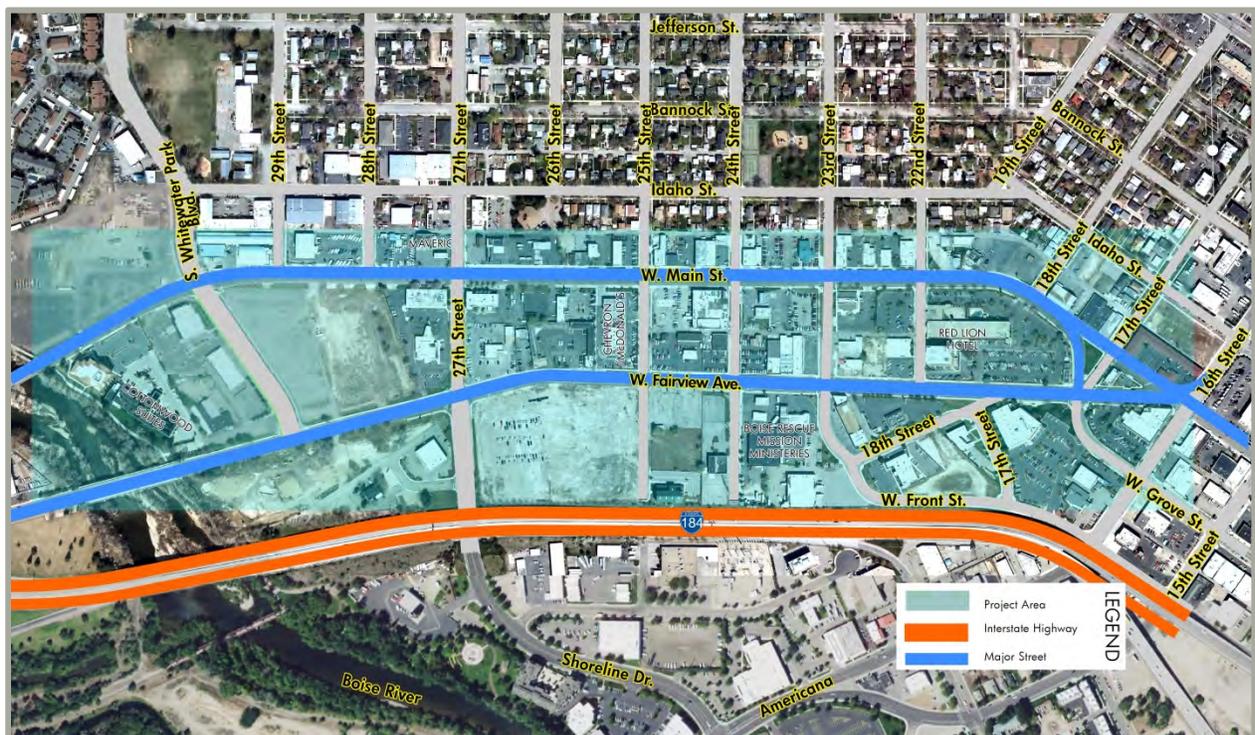
The Ada County Highway District (ACHD), in cooperation with the City of Boise, has developed the Fairview Ave. and Main St. Improvements and Local Streets Plan (the Plan) to evaluate and recommend infrastructure improvements to the area around the one-way couplet of Fairview Ave. and Main St. The Plan is a result of the findings from the *30th Street Area Master Plan*. Specific objectives of the Plan include:

- Determining the feasibility of reducing the number of travel lanes on Fairview Ave. and Main St. from four to three to allow for the reconfiguration of these arterials.
- Adding on-street parking to Fairview Ave. and Main St.
- Improving existing bicycle lanes on Fairview Ave. and Main St.

The Plan proposes an expansion of the local streets network between Idaho St. and the I-184 Connector to decrease out of direction travel and increase connectivity for motorists, pedestrians, and bicyclists. These local streets will be designed and constructed by developers through the redevelopment process. The Plan's objectives were established to promote revitalization of the Fairview Ave. and Main St. area through redevelopment.

The Plan's objectives include:

- Promoting walkable, people oriented, mixed-use neighborhoods through development
- Enhancing mobility for motorists, pedestrians, and bicyclists
- Enhancing the local street network as the area develops



Improvement Plan

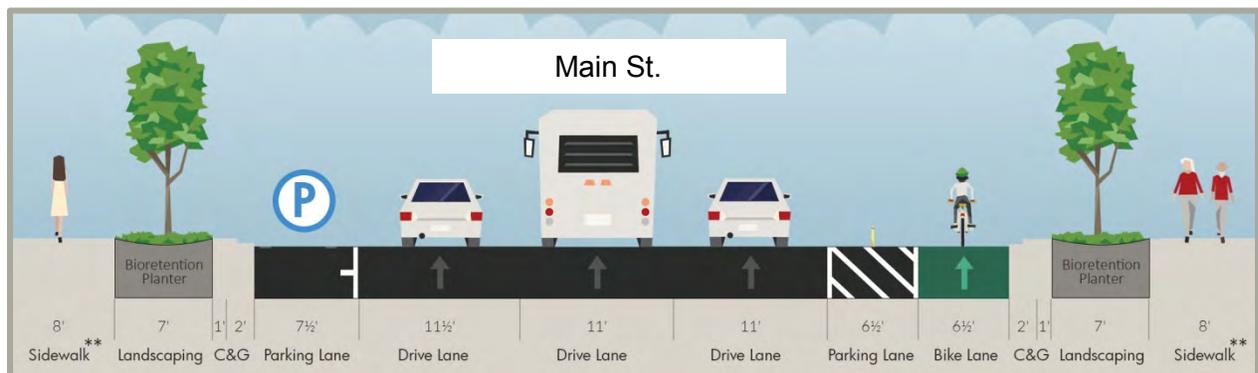
The Plan has been developed through conceptual and operational analyses, stakeholder and public involvement, interaction, and feedback, and the technical team's direction and decisions. The recommended improvements to Fairview Ave. and Main St. do not include updates to existing curb, gutter, and sidewalk and assume no right-of-way will be necessary to implement. Streetscape improvements to provide new sidewalks, planters, and other features outside of the travel, bike, and parking lanes will be directed by the City of Boise through redevelopment in alignment with the City of Boise's streetscape requirements.

Fairview Ave. and Main St. Lane Reconfiguration Plan

Fairview Ave. will be reconfigured between 16th St. and Whitewater Park Blvd. to provide three vehicle travel lanes, on-street parking on both sides of the street, and a protected bicycle lane on the right side of the street.



Main St. will be reconfigured between 16th St. and Whitewater Park Blvd. to provide three vehicle travel lanes, on-street parking on the south (left) side of the street, and a protected bike lane on the north side of the street.



* Method of bike lane protection is flexible and will be determined with detailed design

** See City of Boise streetscape requirements

Bike Lane Improvement Plan

The bike lanes and cycle tracks for Fairview Ave. and Main St. between Whitewater Park Blvd. and Garden St. will be designed and installed following the cycle track concept shown below.



* Method of bike lane protection is flexible and will be determined with detailed design

** See City of Boise streetscape requirements

Local Street Connections

Fletcher St. Connection

The cross section for the Fletcher St. connection between Whitewater Park Blvd. and 27th St. is to be designed during redevelopment and be reflective of the technical team's discussion of options for modifying or restricting the street to reduce the estimated traffic volume diversion in the travel demand forecasts.

Other Local Streets

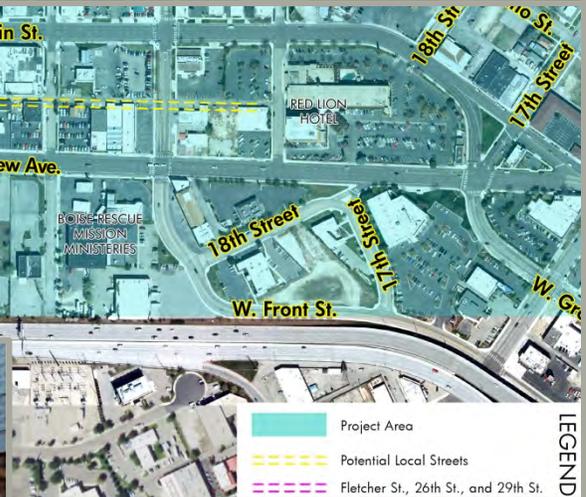
Any local street to be designed and constructed within the Plan area will be located, designed and built by the developer in coordination with ACHD and the City of Boise through the development approval process. Proposed locations, materials and textures will be identified through the redevelopment process in partnership with the City of Boise and ACHD. Individuals and businesses interested in redeveloping land within the Plan area should work with the City of Boise and ACHD to provide streets and alleyways that meet the concepts and requirements presented in the Plan and to each agency's standards.



Example for East-West local streets



Example for local streets



LEGEND

Transit Coordination

All of the proposed improvements in the Plan should be designed and implemented to accommodate existing and future transit service. Valley Regional



Transit's (VRT) long range plan includes decreasing headways between buses on existing routes and adding new service that will use the Fairview Ave. and Main St. one-way couplet. The proposed cycle tracks and bike lanes should be designed to function properly with existing and proposed transit stops.

Plan Implementation

This Plan serves as a blueprint for ACHD and the City of Boise to work together to support redevelopment of the Fairview Ave. and Main St. area and provide accessible, vibrant, and walkable, people-oriented, mixed-use neighborhoods. ACHD will incorporate the recommended improvements to Fairview Ave., Main St., and the adjacent street, pedestrian, and bicycle facilities into specific capital and/or maintenance projects as funding allows. The City of Boise and ACHD will work with the development community to provide needed local street connections through redevelopment, working together through their development processes.

Estimated Costs, Funding, and Timing

A conceptual cost estimate for the Fairview Ave. and Main St. lane reconfigurations between 16th St. and Whitewater Park Blvd. was completed with a separate conceptual cost estimate to install the proposed cycle tracks on both arterials between Whitewater Park Blvd. and Garden St. The cost estimates are based on 2016 prices and details are presented in **Appendix I**. The conceptual cost to implement the lane reconfiguration for Fairview Ave. and Main St. between 16th St. and Whitewater Park Blvd. is estimated at \$126,000. The conceptual cost to implement the cycle track for Fairview Ave. and Main St. west of Whitewater Park Blvd. is estimated to be \$17,000.

These estimates assume the improvements will be incorporated into specific maintenance projects that can receive funding for implementation and will not be stand-alone projects. There are no impediments to moving forward with implementation immediately, following ACHD's normal project development processes. For example, if Fairview Ave. or Main St. is scheduled for chip-sealing or resurfacing, the proposed improvements could be implemented with the maintenance project. If no maintenance projects are scheduled in the short term, then the improvements should be implemented with ACHD's Five Year Work Plan and budget updates.

When implemented, the Fairview Ave. and Main St. Improvements and Local Streets Plan will promote walkable, people oriented, mixed-use neighborhoods through development, enhance mobility for motorists, pedestrians, and bicyclists, and enhance the local street network.

Introduction

The Ada County Highway District (ACHD), in cooperation with the City of Boise, has developed the Fairview Ave. and Main St. Improvements and Local Streets Plan (the Plan) to evaluate and recommend infrastructure improvements to the area around the one-way couplet of Fairview Ave. and Main St. The Plan is a result of the findings from the *30th Street Area Master Plan* officially adopted with City of Boise Resolution 19725 (R-294-07). Specific objectives of the Plan include:

- Determining the feasibility of reducing the number of travel lanes on Fairview Ave. and Main St. from four to three to allow for the reconfiguration of these arterials.
- Adding on-street parking to Fairview Ave. and Main St.
- Improving existing bicycle lanes on Fairview Ave. and Main St.

The Plan proposes an expansion of the local streets network between Idaho St. and Interstate 184 (I-184, the Connector) to decrease out of direction travel and increase connectivity for motorists, pedestrians, and bicyclists. These local streets will be designed and constructed by developers through the redevelopment process.

The Plan’s objectives were developed to meet the vision for the Main-Fairview Sub-district from the *30th Street Area Master Plan*, including:

- Promoting walkable, people oriented, mixed-use neighborhoods through development
- Enhancing mobility for motorists, pedestrians, and bicyclists
- Enhancing the local street network as the area develops



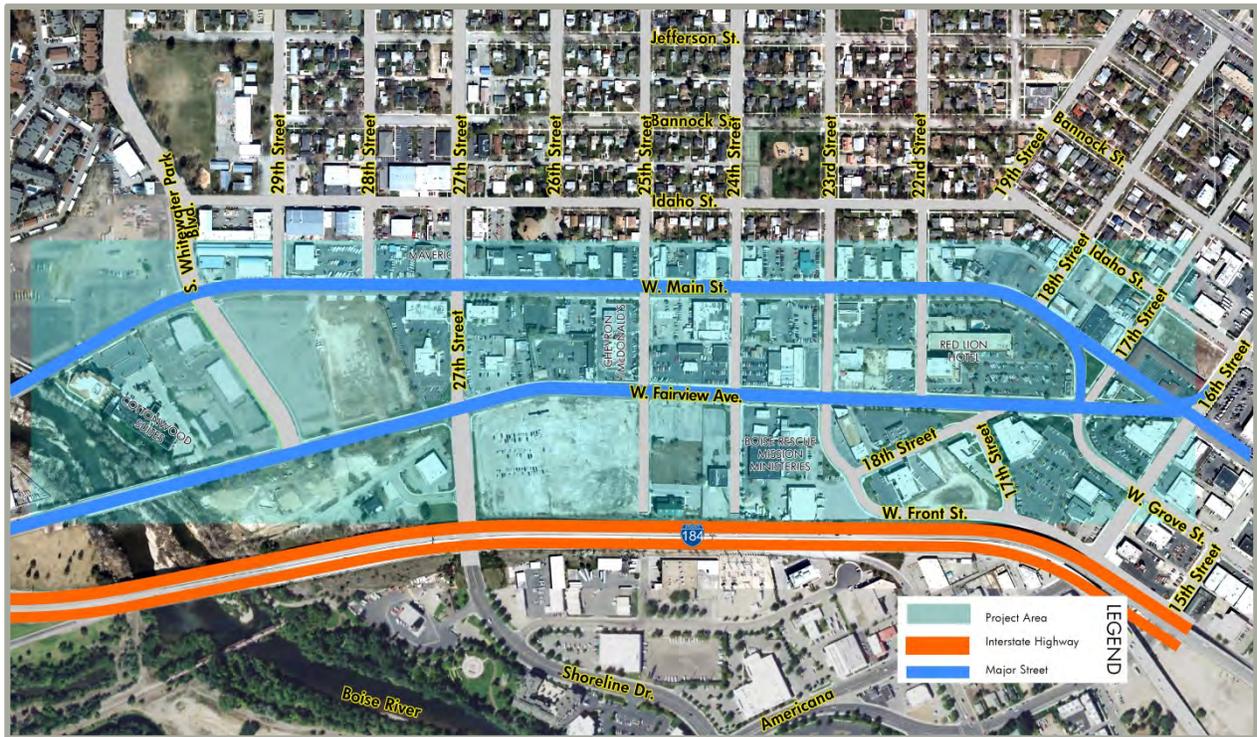
Figure 62: Main-Fairview Subdistrict Development Concept

Source: *30th Street Area Master Plan*

Planning Area

The Plan area shown in **Figure 1** and is bound by Idaho St. to the north, the I-184 Connector to the south, 16th St. to the east, and Garden St. to the west, covering approximately 132 acres (0.21 square miles). The segments of Fairview Ave. and Main St. between Whitewater Park Blvd. and Garden St. were included specifically to investigate bicycle facility improvements. Whittier Elementary School is located just north of the study area at Idaho St. and 29th St. along with residential developments. The Fairview Ave. and Main St. area is envisioned in the *30th Street Area Master Plan* as “a high density, mixed use, urban-style activity center including offices, housing, hotels, cultural and educational uses, restaurants, retail and service businesses which would have a city-wide or regional draw.”

Figure 1. Planning Area



How Citizens Can Use This Plan

Citizens living and commuting in the planning area can refer to this Plan to follow how ACHD and the City of Boise will improve transportation facilities for all users and promote redevelopment in the area. If citizens have comments or questions about this Plan, please contact ACHD to learn more or to discuss.

How ACHD and the City Use this Plan

This Plan serves as a blueprint for how ACHD and the City will work together to support redevelopment of the Main-Fairview Sub-district as outlined in the *30th Street Area Master Plan* to provide accessible, vibrant, walkable, people-oriented, mixed-use neighborhoods. ACHD will incorporate the recommended improvements to Fairview Ave. and Main St. as funding allows. The City of Boise and ACHD will work with the development community to provide needed local street connections through the redeveloped areas.



Recently improved pedestrian ramps installed on Main St. with redevelopment

Plan Technical Team & Process

Coordination between the transportation and land use planning agencies was critical to the development of the Plan. Several agencies served on the technical and public involvement

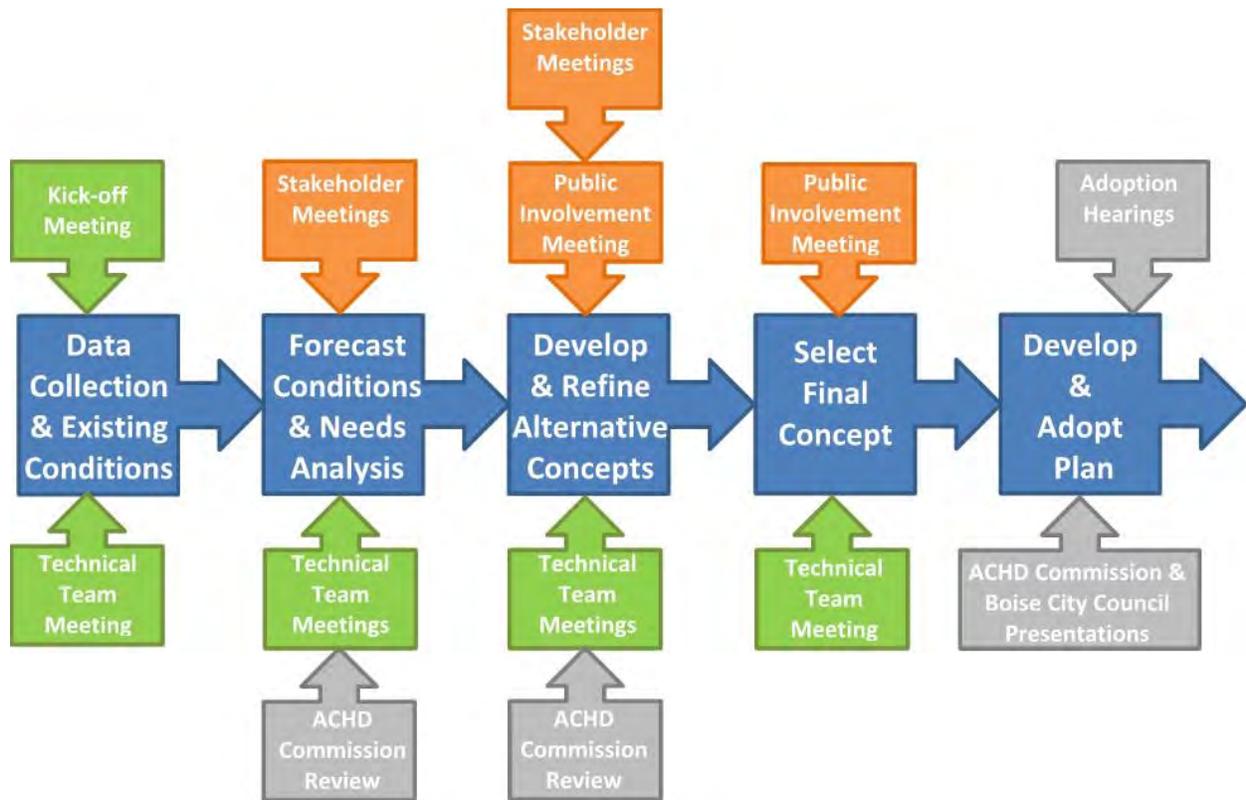
team, providing direction, input, and making collaborative decisions. Participating agencies included:



This team coordinated the plan’s technical items with ACHD’s Communications staff to share alternatives, options, and evaluation results with the public and stakeholders as well as gather their input. Technical team recommendations were adjusted based on public and stakeholder input as well as agency and elected officials reviews.

Key Plan activities, including public meetings, agency review, stakeholder involvement, and elected officials meetings are outlined in the Plan Process shown in **Figure 2**.

Figure 2. Plan Process



Data Collection

Existing Plan and Policy Review

Several existing plans and policies have been completed or are in the planning/design process that have impact on the Plan. These were researched and pertinent information was gathered

from each to guide the technical team in developing the Plan goals and recommendations. The existing plans and policies reviewed are summarized in **Table 1**.

Table 1. Existing Plans and Policies

Plan/Policy	Relevancy to Fairview Ave. & Main St. Local Streets Improvement. Plan
30 th Street Area Master Plan (2012)	This plan identified the desire to reconfigure the couplet to reduce the number of travel lanes in each direction from four to three and allow bicycle and parking lanes, street trees, and street furnishing to be added. It provided the objectives for the Plan.
Blueprint Boise (2011)	Boise’s comprehensive plan defines specific policies for the Fairview Ave. /Main St. area related to land use and street connectivity.
Urban Renewal Plan: 30 th Street Area Urban Renewal Project	This renewal plan outlines the redevelopment activities that will revitalize the area and improve the infrastructure. It supported the Fairview Ave. and Main St. lane reconfigurations and local street connections.
Boise Transportation Action Plan (2016) – Draft	This plan outlines the City’s vision for transportation, including new connections and prioritization criteria. This plan envisions increasing transportation choices and is scheduled for adoption in February 2017.
Main and Idaho Bicycle Lane Alternatives Study (2016) - Deferred	ACHD is evaluating a proposal to include bicycle lanes on Main and Idaho streets. Alternatives from that study were included in this Plan as to provide continuity along the connecting streets.
Valleyconnect (2011)	VRT’s long range vision of comprehensive alternative transportation system, including expanded service in the Plan area.
ACHD Complete Streets Policy (2009)	Provides a guiding principle for this Plan; the transportation system should allow people of all ages and abilities to travel safely and independently.
Downtown Boise Streetscape Standards & Specifications Manual (2016)	The Downtown Boise Streetscape Standards & Specifications Manual outlines streetscape standards for new development and CCDC streetscape projects downtown. Specific streetscapes and Green Stormwater Infrastructures (GSI) integration are proposed for the Fairview Ave. /Main St. Area.
Fairview Ave./Grove St./Main St./17 th St. Pedestrian Project (2016) Built	ACHD ADA Committee requested project: Pedestrian facilities where these intersections converge were improved with Accessible Pedestrian Signals (APS), Rectangular Rapid Flashing Beacon (RRFB) Signals, pedestrian ramp installation/improvements, and concrete sidewalk rehabilitation. These improvements addressed a safety need identified in the Plan.

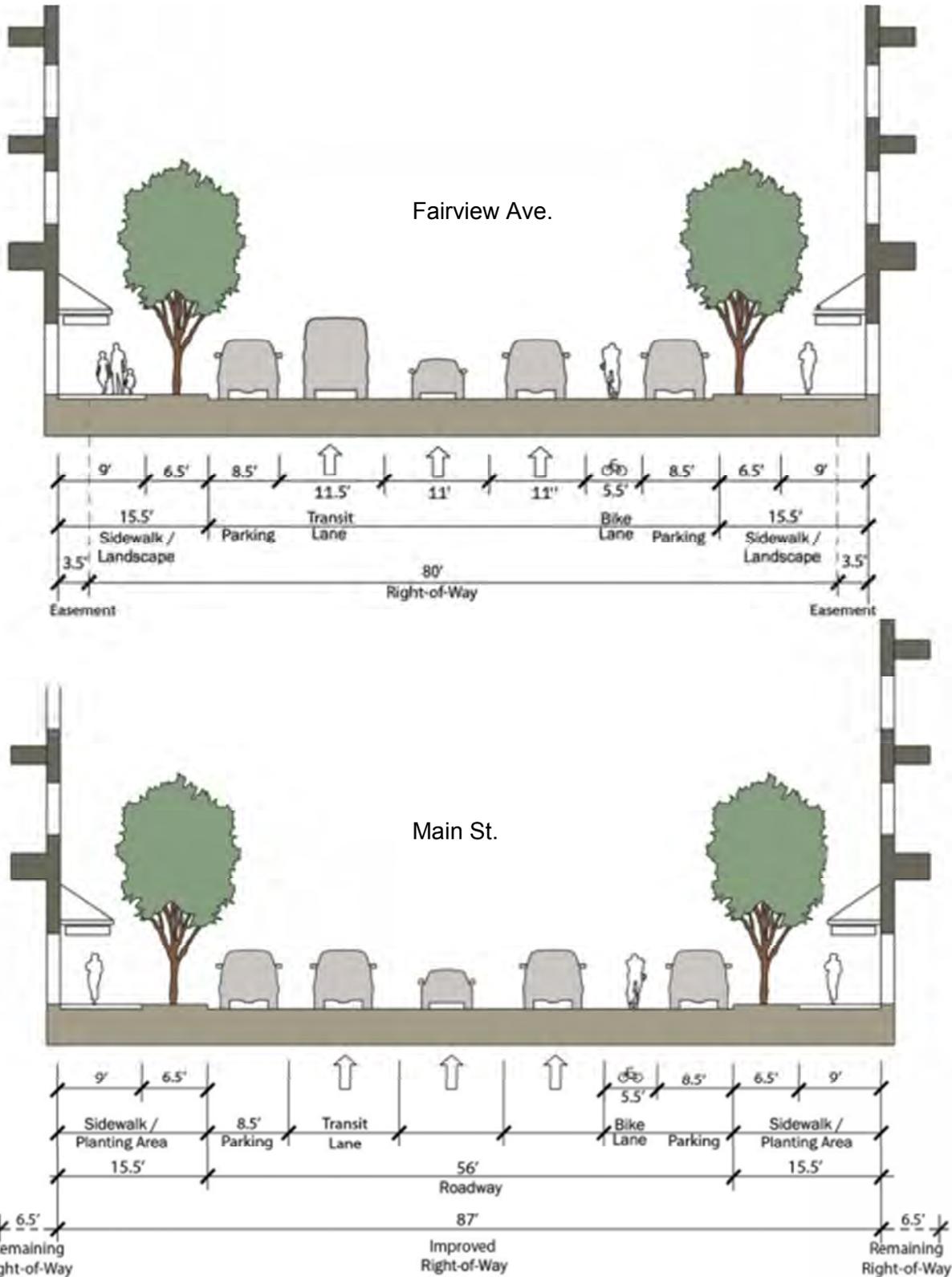


Table 1. Existing Plans and Policies

Plan/Policy	Relevancy to Fairview Ave. & Main St. Local Streets Improvement. Plan
Downtown Parks and Public Spaces (2016)	<p>The City of Boise is leading this planning effort to support the desire to live, work, and play Downtown as several large scale projects and a growing interest in urban living are redefining Downtown Boise. This plan recommends the following three improvements for the Plan area:</p> <ol style="list-style-type: none"> a. Develop a large gathering space near the intersection of Whitewater Park Blvd. and Main St. b. Improve or remove informal access points to the Boise River and Greenbelt c. Develop a “greenway” thru-block between Main St. and Fairview Ave. that integrates parklets, pocket parks, small gathering spaces, and street trees.

The *30th Street Area Master Plan* identified and developed preferred street sections for Fairview Ave. and Main St., shown in **Figure 3**. These recommendations were the starting point for this Plan’s alternative concept discussions and investigation.

Figure 3. Preferred Fairview Ave. & Main St. Sections from 30th Street Area Master Plan- (2012)



Source: 30th Street Area Master Plan



Agency Supplied Data

Several agencies provided the supporting data summarized in **Table 2**. Details are found in the Data Collection and Existing Conditions Technical Memo in **Appendix A**.

Table 2. Agency Supplied Data

Agency	Data
ACHD	<ul style="list-style-type: none"> • Current average daily traffic (ADT) volumes for study streets • Current AM and PM peak hour volumes for the Fairview Ave. and Main St. signalized intersections • Available pedestrian counts • Existing storm drain facilities and outfalls within the plan area • VISSIM traffic simulation software base model • Existing signal timings • Existing right-of-way information • Existing travel time runs on Front St. and Main St. • 2015 and 2040 AM peak regional travel demand model runs
City of Boise/CCDC	<ul style="list-style-type: none"> • Map of requested new local network • Committed and planned infrastructure improvements in the area, including private development • Current and planned land use and zoning
VRT	<ul style="list-style-type: none"> • Confirmation of existing bus routes and headways in the study area • Estimate of bus routes and headways for forecast analyses
COMPASS	<ul style="list-style-type: none"> • 2015 and 2040 PM peak and daily regional travel demand model runs for the area
ITD Office of Highway Safety	<ul style="list-style-type: none"> • 2010-2014 crash data for the Fairview Ave. and Main St. streets and intersections in the area

Field Review

A field review of the streets and intersections throughout the Fairview Ave. and Main St. couplet area was conducted to determine the existing street and intersection configuration, traffic control, bus stop locations, street curb-to-curb width (measured to the face of curb), sidewalk locations and widths, and driveway density/spacing. Travel times during the AM and PM peak hours along Fairview Ave. and Main St. were also collected by HDR. Measurement results and values are found in **Appendix A**.

Existing Conditions

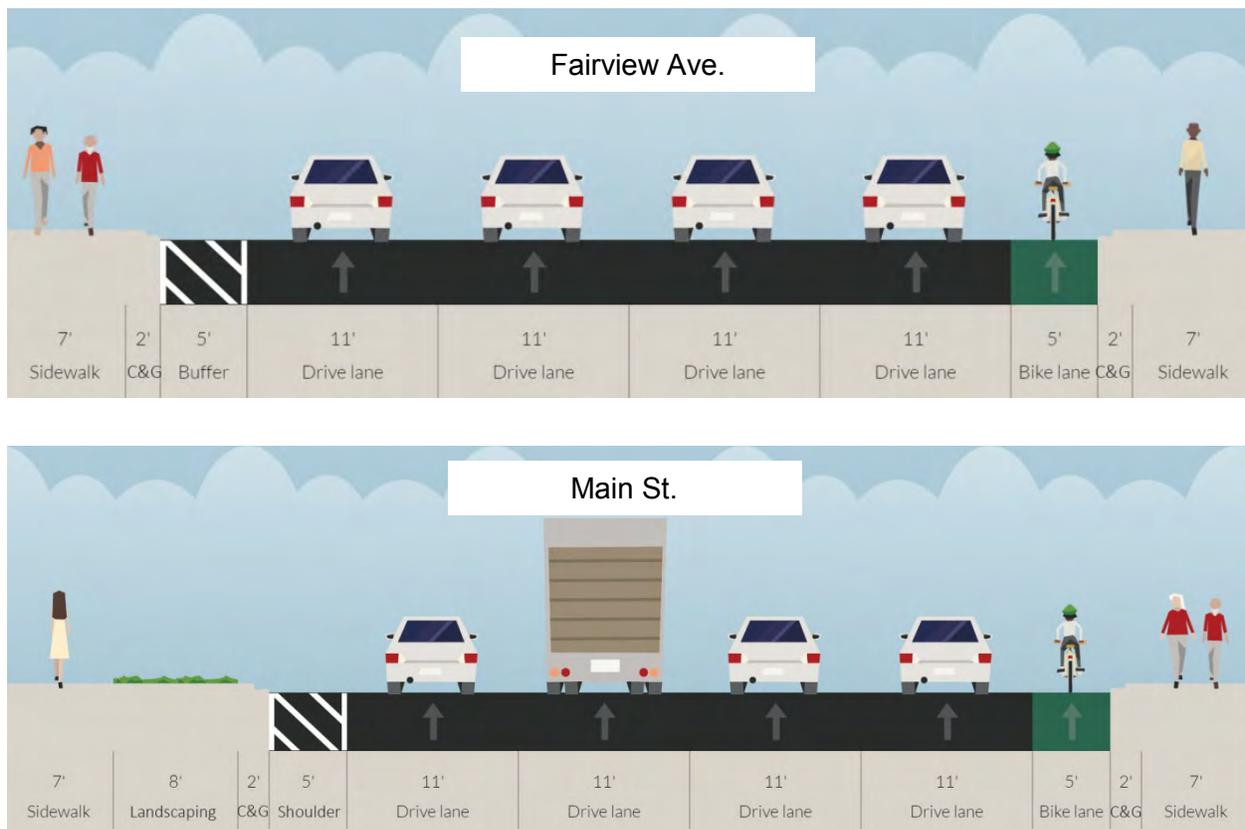
The following sections discuss the existing and planned transportation infrastructure and service improvements, as well reporting on the level of service (LOS) of the streets and intersections within the study area. Detailed existing conditions information is found in **Appendix A**.

Streets

The Plan street information, including *Livable Streets Design Guide* designations, is summarized below. Existing cross sections for Fairview Ave. and Main St. are shown in **Figure 4**.

- Fairview Ave. is functionally classified as a principal arterial and as a Town Center Arterial on the Ada County Master Street Map (MSM). It has four one-way travel lanes for eastbound traffic, a dedicated bicycle lane, and curb, gutter, and sidewalk on both sides. Fairview Ave. typically has 80-feet of existing right-of-way.
- Main St. is functionally classified as a principal arterial and as a Town Center Arterial on the MSM. It has four one-way travel lanes for westbound traffic, a dedicated bicycle lane, and curb, gutter, and sidewalk on both sides. Main St. typically has 80-feet of existing right-of-way.

Figure 4. Existing Fairview Ave. and Main St. Cross Sections



- Whitewater Park Blvd. is functionally classified as a minor arterial and as a Town Center Arterial on the MSM. It has two travel lanes and a bicycle lane in each direction with curb, gutter, and sidewalk on both sides.
- 27th St. is functionally classified as a minor arterial and as a Neighborhood Arterial north of Main St. and a Town Center Arterial south of Main St. on the MSM. South of Fairview Ave. 27th St. has two lanes in each direction, between Fairview Ave. and Main St. It has

one travel lane in each direction with one dedicated left turn lane in each direction. North of Main St. it has one lane in each direction with a painted two-way left turn lane median. There is a bicycle lane in each direction along 27th St. in the area and curb, gutter, and sidewalk on both sides.

- 16th St. is functionally classified as a minor arterial and as a Town Center Arterial on the Ada County Master Street Map. It has four one-way travel lanes for southbound traffic north of Main St. South of Main St. it has three one-way travel lanes. There is a bicycle lane on the east side of the road north of Main St. and a bicycle lane on each side of the road south of Main St. It has curb, gutter, and sidewalk on both sides.
- 23rd St. is functionally classified as a local street. North of Main St. it is a two-lane, two-way street with on-street parking. Between Fairview Ave. and Main St. it has one travel lane in each direction with one dedicated left turn lane in each direction, and south of Fairview Ave. it has one lane in each direction.
- The remaining streets are all classified as local streets.
 - 29th St., 28th St., 25th St., 22nd St., 18th St., and 17th St. north of Main St. are two-way, two-lane roadways with on-street parking.
 - 17th St. between Fairview Ave. and Main St. has two one-way lanes for northbound traffic. North of Main St. it is a two-way, two-lane roadway with on-street parking.
 - Grove St. is a two-way, two-lane roadway with a bicycle lane and curb, gutter, and sidewalk on both sides.

Intersections

The study intersections, including existing control, turning movement volumes at signalized intersections, and daily volumes, are shown in **Figure 5**. The existing lane configurations and details are described in **Appendix A**.

Transit Services

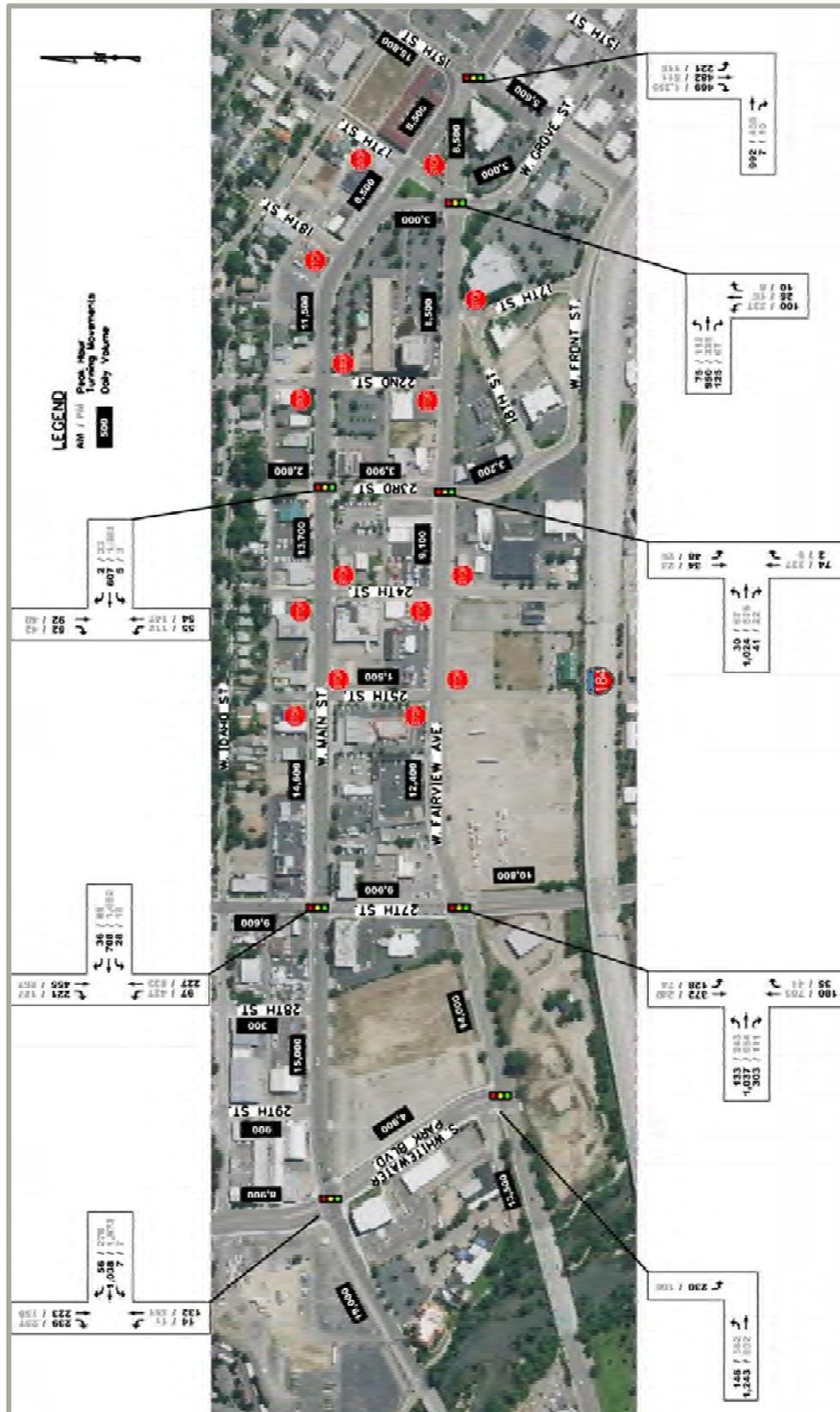
Currently there are 11 buses traveling along Fairview Ave. and Main St. in the AM peak hour, 5 of which are inter-county. In the PM peak hour there are 10 buses traveling the arterials, 5 of which are inter-county. ValleyRide bus routes 6, 7A, 7B, 8x, and 11 serve riders in the area with stops on Fairview Ave. in the southwest corner of the intersections at 27th St., 23rd St., 18th St., and Grove St. Main St. stops are in the northeast corner of the intersections at Whitewater Park Blvd., 27th St., 23rd St., and 18th St. There is a bench at the stop at Fairview Ave. and 27th St., a shelter at the bus stop at Main St. and 23rd St., and a bus pullout with a shelter at the bus stop on Fairview Ave. and 18th St.

Inter-county bus routes 40, 42, and 43 use Fairview Ave. and Main St. to travel from Nampa and Caldwell to downtown Boise.



Bus stop shelter and pullout on Fairview Ave. between 18th St. and Grove St.

Figure 5. Existing Street and Intersection Control and Volumes



Pedestrian and Bicycle Facilities



Sidewalk gap & poor condition sidewalk along Fairview Ave. with existing bike lane

A mix of attached and detached sidewalks exists along most of the Plan streets. Sidewalk widths along Fairview Ave. and Main St. vary from 5-feet to 10-feet. There is a gap on the south side of Fairview Ave. between Whitewater Park Blvd. and 27th St. The sidewalk on the south side of Fairview Ave. from 27th St. to 25th St. is in poor quality.

Paved Greenbelt pathways run along both sides of the Boise River under the Fairview Ave. and Main St. Bridges. There are pathway connections to the Greenbelt on both sides of the Boise River from the sidewalk on the north side of Main St. The only connection from Fairview Ave. to the Greenbelt is on the west side of the bridge from the north sidewalk.



There are existing bicycle lanes on Fairview Ave., Main St., Whitewater Park Blvd., 27th St., Grove St., and 16th St. The bicycle lanes on Grove St. south of Fairview Ave. and on Main St. west of Whitewater Park Blvd. have painted buffers. The 5-foot wide painted buffer on Main St. between 27th St. and Garden St. has channelizing posts spaced every 40-feet for additional protection and visibility.

On Main St. from 17th St. to Whitewater Park Blvd., the south side shoulder attracts some cyclists, although it is not marked for bicycles and crosses a number of manholes. Fairview Ave. also has a shoulder on the north side of the road that some cyclists may use.



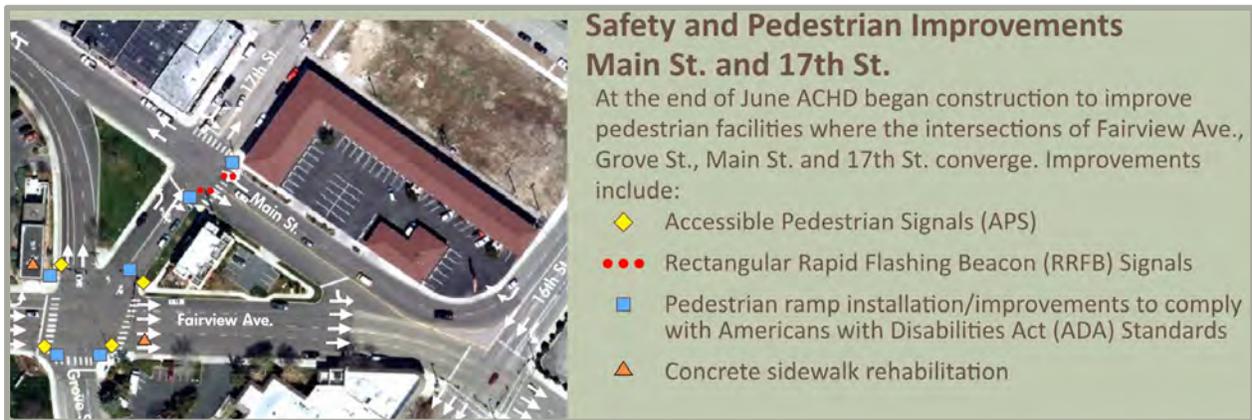
Existing protected bicycle lane on Main St.

Pedestrian Crossings

There are signalized pedestrian crossings of Fairview Ave. and Main St. at each signalized intersection on the one-way couplet, including at Whitewater Park Blvd., 27th St., and 23rd St. The Fairview Ave./Whitewater Park Blvd. has one marked crossing on the west side of Fairview Ave. leading to a pedestrian ramp but no sidewalk. The Fairview Ave./27th St. intersection has no marked crossing on the east side of Fairview Ave. There are no marked crossings on the north side of Fairview Ave. at 17th St. and at Grove St.

ACHD installed improvements to pedestrian facilities consistent with the Americans with Disabilities Act (ADA) Standards where Fairview Ave., Grove St., Main St. and 17th St. converge in the summer of 2016. The pedestrian improvements are shown in **Figure 6**.

Figure 6. Safety and Pedestrian Improvements, Main St. and 17th St. – (2016)



Travel Times

Travel times during peak commuting hours were collected along Fairview Ave. and Main St. between Whitewater Park Blvd. and 16th St. and are summarized in **Table 3**. Six runs each were completed during the AM (7:00-8:30 a.m.) and PM (4:30-6:00 p.m.) peak hours. The measured Fairview Ave. length is 0.67 miles and the measured length for Main St. is 0.75 miles. Detailed travel time information is found in **Appendix B**.

Table 3. Observed Peak Hour Travel Times

Street	Average Travel Time (Seconds)	Average Travel Speed (mph)	Longest Run Travel Time & Time Measured (Seconds)	Longest Run Travel Speed (mph)	Shortest Run Travel Time & Time Measured (Seconds)	Shortest Run Travel Speed (mph)
AM Peak Hour						
Fairview Ave.	132	23.4	164 – 7:44 a.m.	18.6	103 – 8:17 a.m.	28.3
Main St.	142	24.1	296 – 7:50 a.m.	18.2	99 – 7:20 a.m.	27.5
PM Peak Hour						
Fairview Ave.	109	25.1	156 – 5:15 p.m.	19.8	80 – 5:05 p.m.	29.2
Main St.	139	17.6	530 – 5:20 p.m.	8.1	95 – 4:53 p.m.	28.3

Fairview Ave. and Main St. are important commuter arterials and the travel times during the peak hours reflect that. The travel times and speeds are near free-flow conditions before the peak commute times and then spike quickly right before 8:00 a.m. and after 5:00 p.m. The spikes are estimated to last about 20 minutes during the morning commute and about 40 minutes during the evening commute. Main St. in the evening commute experiences the most delay and longest travel times.



Operational & Capacity Analysis

Intersections

The PM peak VISSIM model provided by ACHD included all of downtown Boise and it was observed that simulated traffic was backing up from downtown onto Fairview Ave. This condition was not observed during the actual typical peak hour operations, so specific model refinements were made to keep traffic from backing into the project area in order to identify specific needs and improvements for the Plan intersections. The ACHD model was calibrated to existing vehicle volumes and travel times. ACHD has set intersection measures and capacity thresholds based on the volume-to-capacity (v/c) ratio which include LOS D = v/c ratio of 0.90 and LOS E = v/c ratio of 1.00. The measurements for each intersection include a v/c ratio = 0.90 for the total intersection and a v/c ratio = 1.00 for each lane group. Details of thresholds and analysis are found in **Appendix A**.

Intersection performance was calculated from the calibrated VISSIM model averaged across 10 simulation runs. **Figure 7** show the average delay by movement, intersection LOS, and maximum approach queue length for the signalized intersections on Main St. and Fairview Ave. The arrows depict the vehicle movements at the intersection, the number next to them the average delay in seconds, and the colors correspond to the LOS for the movement according to the legend in **Table 4**. The letters and numbers in the center of the intersection represent the overall intersection delay and LOS. The estimated maximum queue numbers are in feet from the intersection stop bar.

Table 4. LOS Thresholds for Motor Vehicles at Signalized Intersections

LOS	Control Delay per vehicle (seconds per vehicle)	Color Code in Capacity Report Figures
A	<= 10	
B	10-20	
C	20-35	
D	35-55	
E	55-80	
F	>80	

River is estimated to operate at LOS E during the evening commute, which is acceptable per ACHD's Policy and normally only exists at this LOS for less than an hour each day.

Pedestrians

Pedestrian counts were only available at two study intersections; Main St. and 16th St. and Fairview Ave. and 23rd St. Main St. and 16th St. had 29 pedestrians travel through the intersection during a two-hour morning count. Of these, 17 crossed Main St. on the east approach. At Fairview Ave. and 23rd St. there were 18 pedestrians observed during an hour and 45 minutes in the afternoon. Pedestrian activity is expected to increase around bus stops, which are located along the one-way couplet at signalized intersections with marked and signalized pedestrian crossings. Most unsignalized intersections with Fairview Ave. and Main St. have unmarked pedestrian crossings of the cross streets, with the exception of two approaches at Main St. and 17th St. No mid block crossings exist.

The majority of pedestrian ramps appear to be ADA compliant. There are some that are not compliant based on visual inspection that can be updated with future projects. Access to the Greenbelt is available at the north side of the Main St. crossing of the Greenbelt on both sides of the Boise River. Fairview Ave. has access to the Greenbelt from the north side on the west side of the Boise River.

Bicycles

Bicycle counts provided by ACHD revealed a high bicycle volume on 16th St. (one-way, southbound) at the Idaho St. intersection. 48 bicycles were observed traveling southbound during the peak two hours in the morning (7:00 – 9:00 a.m.) and 28 during the peak two hours in the afternoon (4:00 – 6:00 p.m.). At 16th St. and Main St. on a different day, 53 were observed during the same peak two hours in the morning, and 35 during the peak two hours the afternoon. Between 25-40% of observed cyclists used the sidewalk.

Safety Analysis

Crash data for the most recent available 5 years (2010-2014) from the ITD Office of Highway Safety identified 57 total crashes along Fairview Ave. and 90 along Main St. There were no reported crashes at the intersection of Fairview Ave. with Whitewater Park Blvd. **Figure 8** shows the type, severity, and representative location of all the reported crashes.

Only 12 of the 147 crashes were not at intersections. Forty-five of the crashes were injury crashes (31% of total). By far the most common type of crash was angle crashes at intersections, accounting for almost half of all crashes (47%), followed by same direction turning crashes (18%), sideswipe same (14%), and rear-end crashes (10%). Over three-quarters of all crashes occurred in daylight and 86% occurred under dry conditions. The most common contributing circumstances include inattention (24%), failure to obey signal (21%), improper lane changes (14%), and failure to yield (12%). These crash types and contributing circumstances are consistent with those expected with one way operations and signalized intersections.

Figure 8. Fairview Ave. and Main St. Crash History



The intersections were separated into signalized and unsignalized groupings to compare similar intersections. The average crash rate was calculated for each group and the critical crash rate for each intersection was calculated following *Highway Safety Manual* (HSM) guidelines. The actual crash rates for each intersection were compared to the critical crash rate to identify those intersections with excessive crash patterns. One intersection in each group was found to have a crash rate higher than the critical crash rate; Fairview Ave. and 27th St. for signalized intersections and Main St. and 17th St. for stop-controlled intersections. Details of the critical crash rates are found in **Appendix A**.

Fairview Ave. and 27th St. had by far the most crashes at any intersection (28) with half being angle crashes with turning vehicles, six same direction turning crashes, and three rear-end crashes. Over one-third of crashes had injuries with the most common contributing circumstances being inattention (10) and failure to obey signal (10). This intersection was identified as a high crash location by ACHD. In 2015 ACHD added lighting, repositioned signal heads, and updated signing and pavement markings at the Main St. and 27th St. intersection to make things clearer for motorists as well as adjusting signal timing time of day plan changes to be

less abrupt, all in effort to improve operations at the intersection. Data is not available yet to determine how these improvements have affected the crash rate

at the intersection. Similar improvements are planned for the Fairview Ave. and 27th St. intersection to address the crash patterns and frequency.

The Main St. and 17th St. intersection has significant issues with vehicles turning from the 17th St. approaches onto Main St. Thirteen of the seventeen crashes at this intersection were angle crashes with the main contributing circumstances being inattention (5), failure to obey stop sign (5), and failure to yield (4). There is a perception issue where motorists try to turn onto Main St. and misjudge the approaching vehicles speed or turn into the wrong lane. Sight distance issues exist for both 17th St. approaches looking east with utility poles, landscaping, and buildings within the sight triangles. ACHD completed a project this year to enhance the pedestrian crossings. It was originally requested by the ACHD ADA Advisory Committee and will help with some of the safety issues identified.

Concept Development

Future Development

The Plan's objectives were established to promote revitalization of the Fairview Ave. and Main St. area through redevelopment. While several parcels in the area are currently undeveloped, new development is anticipated in the near and distant future. Future development in the area will be pedestrian and bicycle oriented and includes the College of Western Idaho (CWI) development in the northwest quadrant of the Main St. and Whitewater Park Blvd. and the LocalConstruct parcel between Fairview Ave. and Main St. east of Whitewater Park Blvd. Future developments that are being discussed are shown in **Figure 9**.

Conceptual lane reconfiguration options are shown in **Figures 10 and 11** for Fairview Ave. and Main St., respectively. The options are virtually identical between the two arterials other than the existing right-of-way widths.

Option A - On-street parking on both sides/bike lane

Option A removes one through travel lane and adds on-street parking to both sides of the street with a bike lane between the travel lane and on-street parking on the right side of the street.

Option B - On-street parking on one side of the street/protected bike lane

Option B removes one through travel lane, adds on-street parking on the left side of the street and a protected bike lane on the right side of the street.

Option C - On-street parking both sides/parking protected bike lane

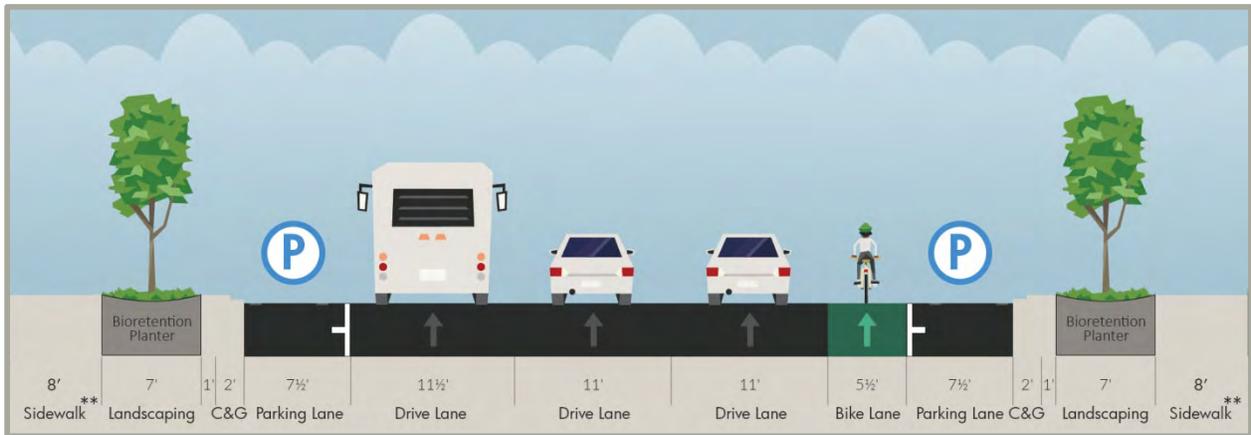
This option was added to be consistent with the *Main and Idaho Bicycle Lane Alternatives Study* being conducted concurrently by ACHD. Option C removes one through travel lane, adds on-street parking to both sides of the street, and provides a protected bicycle lane on the right side of the street. The parking on the right side of the street is adjacent to the travel lanes and the bike lane is adjacent to the curb and gutter.

Figure 9. Plan Area Future Development

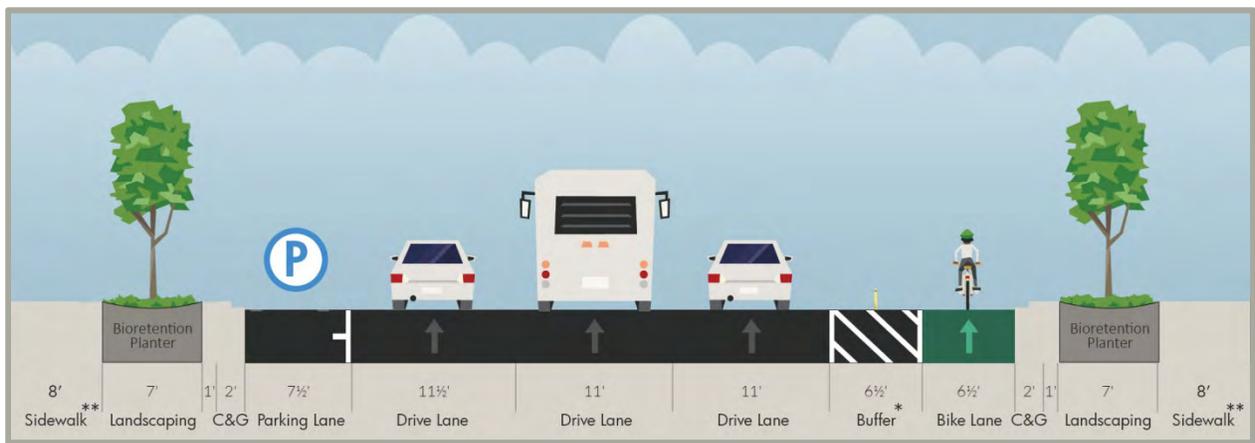


Streetscape components, including planters and detached sidewalks, are shown for information purposes only and are based on the *Downtown Boise Streetscape Standards & Specifications Manual* for new development and streetscape projects downtown. Fairview Ave. and Main St. are designated Green Streets in this manual and are shown to have a minimum 8-foot wide concrete sidewalk with a bio-retention planter between the sidewalk and the back of curb. It has a 7-foot wide planter with a 1-foot offset from the back of curb. This section and plan are shown in **Figure 12** and the proposed sections in **Figures 10 and 11** show the street cross section. The 8-foot wide sidewalks require additional right-of-way, which will be addressed through redevelopment.

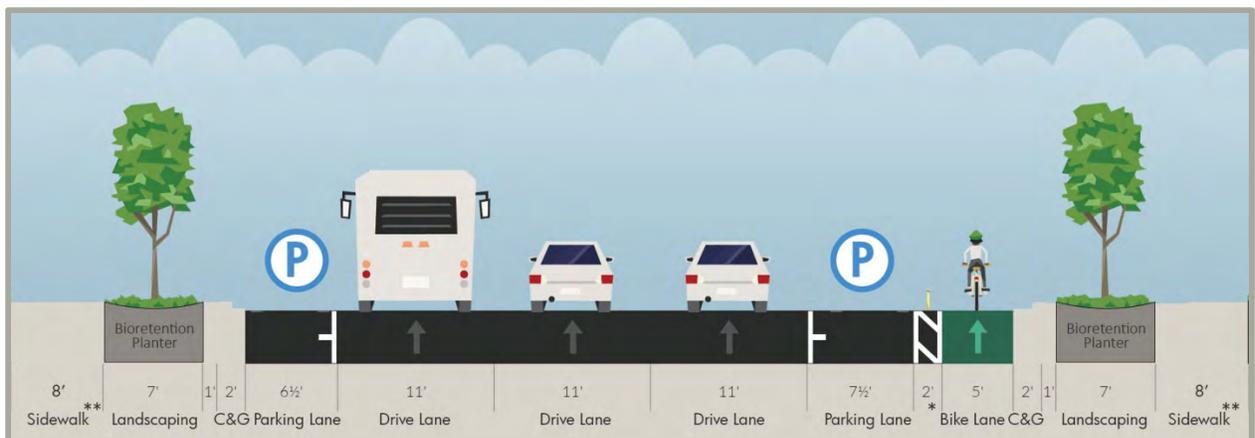
Figure 10. Fairview Ave. Lane Reconfiguration Options
Option A – On-street parking on both sides/bike lane



Option B – On-street parking on one side of street/protected lane



Option C - On-street parking both sides/parking protected bike lane

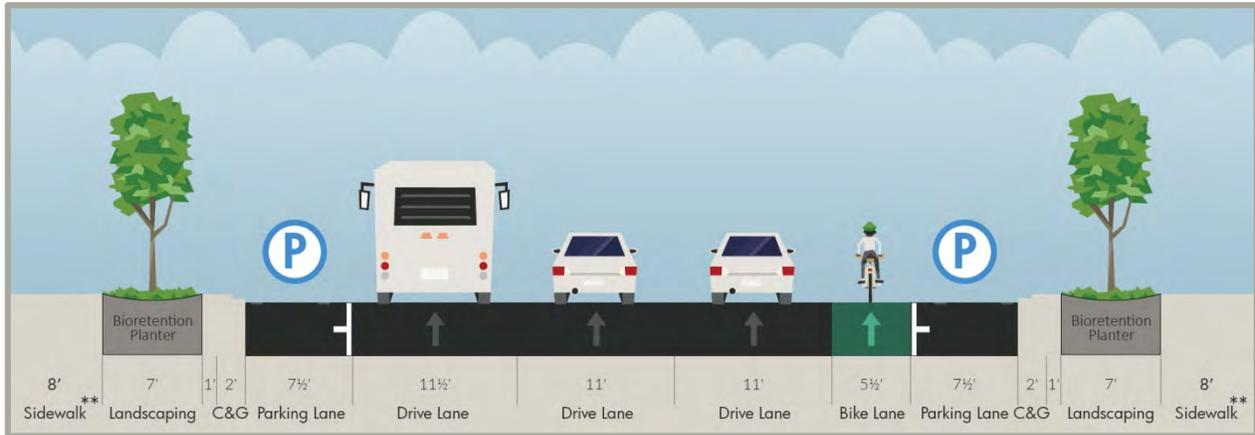


* Method of bike lane protection is flexible and will be determined with detailed design

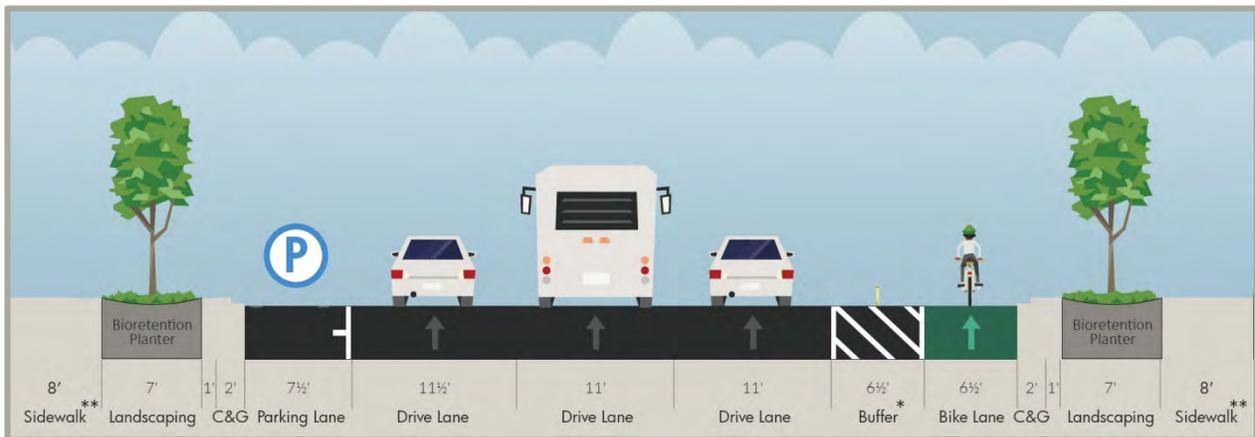
** See City of Boise streetscape requirements

Figure 11. Main St. Lane Reconfiguration Options

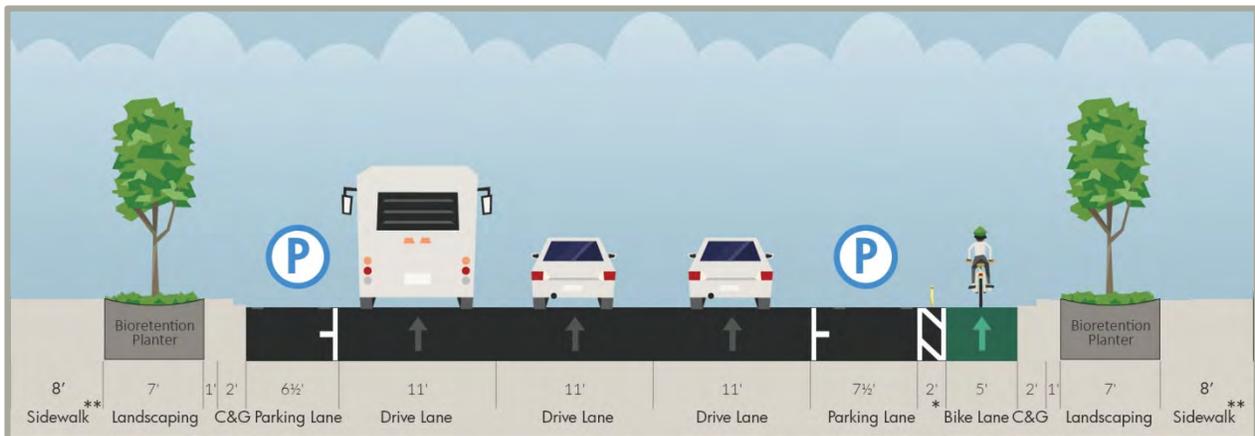
Option A – On-street parking on both sides/bike lane



Option B – On-street parking on one side of street/protected lane



Option C - On-street parking both sides/parking protected bike lane



* Method of bike lane protection is flexible and will be determined with detailed design

** See City of Boise streetscape requirements

Green Stormwater Infrastructure (GSI)

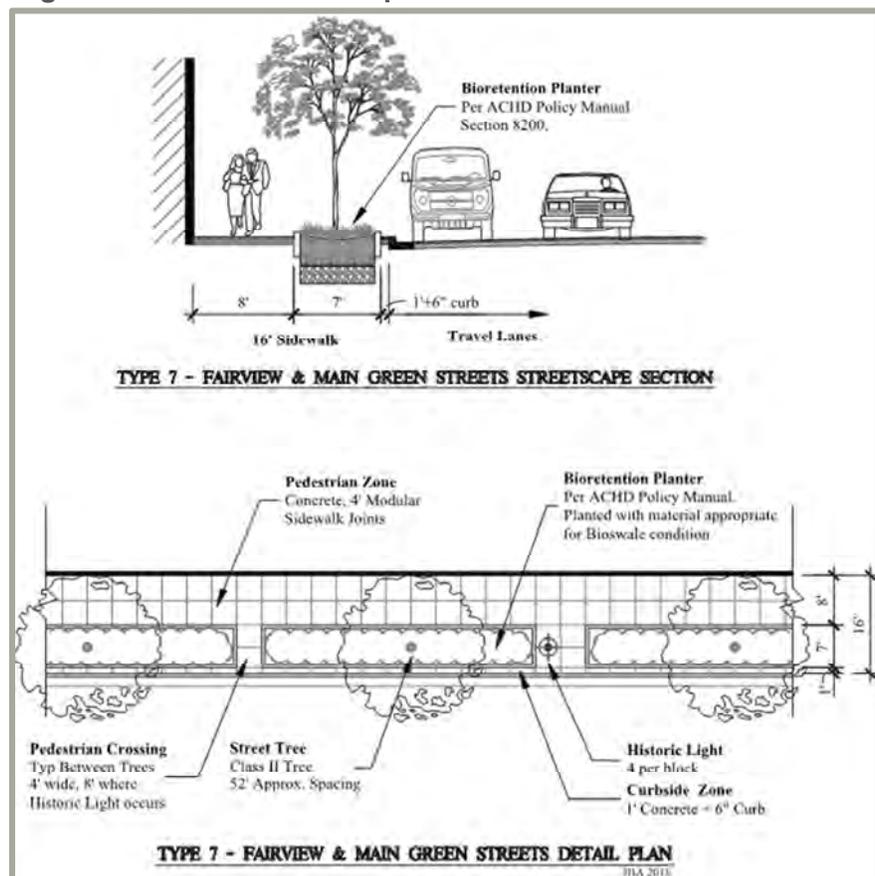
All of the lane reconfiguration options for Fairview Ave. and Main St. include green stormwater infrastructure (GSI) treatments for stormwater runoff. Currently, the ultimate receiving water for stormwater discharges from Fairview Ave., Main St., and private property in the one-way couplet area is the Lower Boise River. Stormwater runoff is managed in this area by a storm drain system which directly discharges untreated stormwater into the river. Opportunities for other methods of stormwater management and water quality improvement are under investigation because of regulatory requirements in the National Pollutant Discharge Elimination System (NPDES) stormwater permit (No. IDS-02756-1) and Total Maximum Daily Load (TMDL) pollutant management plans.

The NPDES permit outlines how the ACHD and other agencies must work together to reduce pollutant loads to the Boise River as well as many other aspects of controlling stormwater within Boise and Garden City (located west of the study area after crossing the Boise River). Permit requirements include runoff reduction for development and redevelopment projects greater than 5,000 SF.

The Clean Water Act requires the development of a TMDL pollutant management plan for waters that do not meet water quality standards or support beneficial uses. TMDL allocations have been set for sediment, bacteria and phosphorus for the Lower Boise River. Temperature TMDL for select reaches of the Boise River and its tributaries are in the process of being established. Water quality targets and/or criteria for phosphorus, sediment, E. coli and temperature must be met as part of the permit.

As part of a 2014 Environmental Protection Agency (EPA) Community Partners Technical Assistance project, a green street conceptual design was developed for a one block section of underutilized street on Fairview Ave. near downtown Boise, subject to redevelopment. A case

Figure 12. Green Streetscape



Source: *Downtown Boise Streetscape Standards & Specifications Manual*

study was conducted to determine the potential for green street features to manage road runoff and/or off-site stormwater retention mitigation or credit for the redevelopment of adjacent property. The case study revealed that the green street features can offset a portion of the stormwater runoff reduction or retention requirements through direct management of runoff within the right-of-way.

An ACHD subwatershed planning project (Ecosystem Sciences, 2016) has developed strategic subwatershed-scale plans for Main St. and Americana Blvd. The plan prioritizes areas to implement (GSI) to reduce stormwater runoff and water quality impairment to the Boise River.

GSI options for water quality treatment include permeable pavers in parking lane and bike lanes, and stormwater tree cells and bioretention planters behind the curb. Private redevelopment projects and road redevelopment provide an opportunity to incorporate GSI. Green building practices are increasingly becoming a quality benchmark for the public and private sector, because they illustrate a commitment to healthier, sustainable communities and place-making, while creating measurable value added for property owners and the public alike.

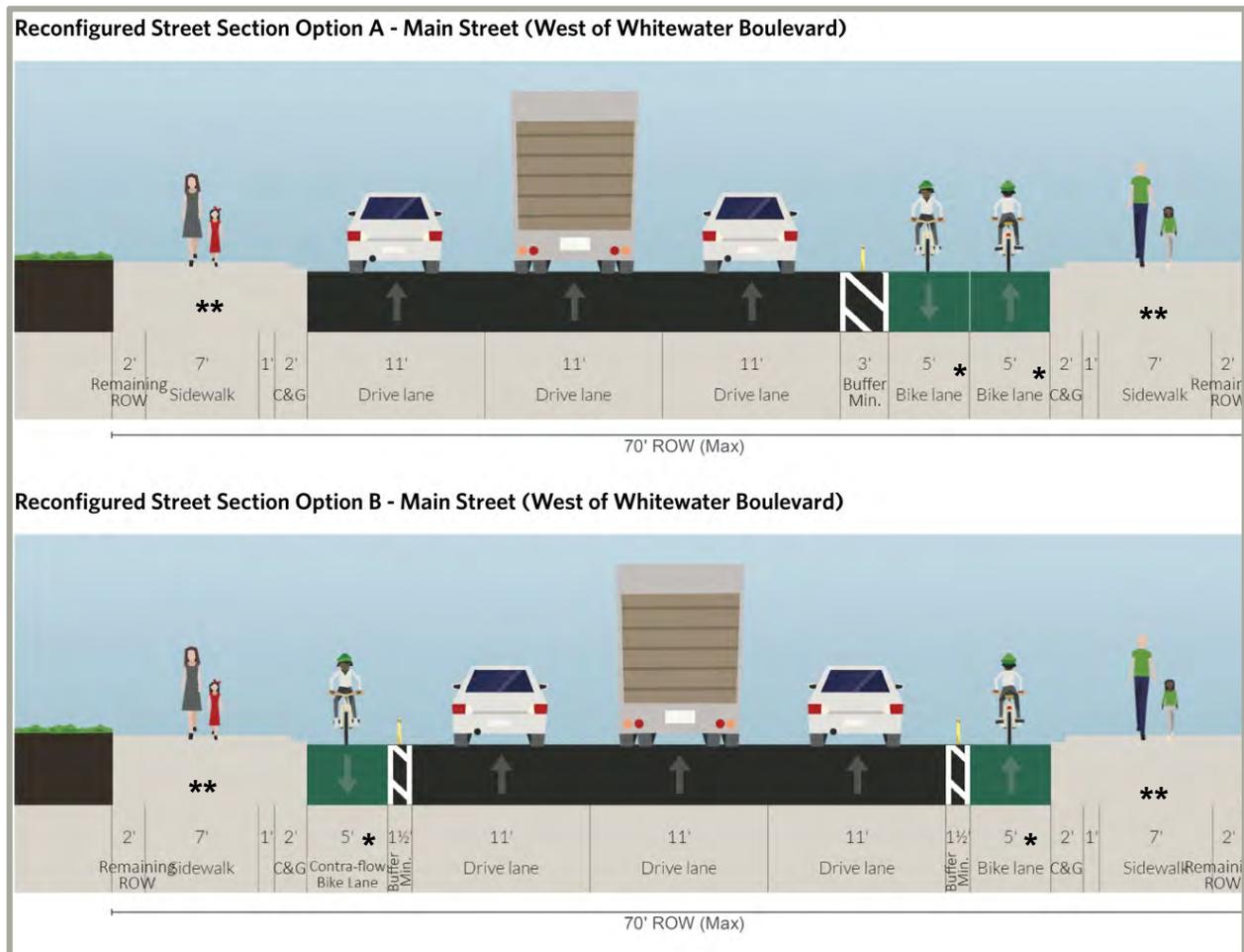
Bike Lane Options west of Whitewater Park Blvd.

Originally the Plan investigated improvements to the bicycle lane on Main St. between Whitewater Park Blvd. and Garden St. Bicycle traffic is expected to increase as the area develops, especially with the proposed CWI campus north of Main St. between Whitewater Park Blvd. and the Boise River. The Plan was expanded to include Fairview Ave. west of Whitewater Park Blvd. and system wide treatments for bicycles were identified as critical to the Plan's success.

Bicycle demand will include travel in both the eastbound and westbound directions on Fairview Ave. and Main St. Plan assumed bicyclists west of the campus will not travel over the Fairview Ave. Bridge to cross the Boise River with eastbound traffic and then travel north to get to a destination on Main St. when they can travel over the Main St. Bridge. Specific options to allow and control bicycle movements in both directions on these arterials were developed to minimize unnecessary conflicts with motor vehicles, pedestrians, and other bicycles.

Figure 13 shows two options were developed for allowing two-way bicycle traffic along the one-way street. Option A is a cycle track on the north side of Main St. with a minimum protected buffer width of 3-feet between vehicle and bicycle lanes. Option B is a traditional bicycle lane for westbound bicycles on the north side of Main St. with a minimum protected buffer width of 1.5-feet between the vehicle and bicycle lanes. A contra-flow lane for eastbound bicycles is provided on the south side of Main St. with a minimum protected buffer width of 1.5-feet between the vehicle and bicycle lanes.

Figure 13. Main St. West of Whitewater Park Blvd. Proposed Bike Lane Options



- * Method of bike lane protection is flexible and will be determined with detailed design
- ** See City of Boise streetscape requirements

Option B was dismissed after discussion with the technical team due to the following concerns:

- The short segment of contra-flow could be confusing.
- Safety concerns as drivers, especially left turning drivers, may be less aware of cyclists on the left side of the road.
- Difficulties in controlling bicycles at the signalized intersections
- Difficulty in merging the the end of the cycle track with the one-way street's travel lanes.

Concerns with how bicycles traveling in the direction opposite of vehicles will be controlled through the signalized intersection at Whitewater Park Blvd. led the team to propose cycle track treatments on both Fairview Ave. and Main St. that end before the intersection. The cycle tracks will begin at Garden St. and end on the east side of the Boise River at proposed connections to the Greenbelt. A single bicycle lane running the same direction as vehicle traffic will continue on each street to Whitewater Park Blvd. The existing number of through travel lanes on Fairview



Ave. (four) and Main St. (three) will be maintained with the cycle track concept. The proposed cycle tracks are shown in plan view as well as cross section for each arterial in **Figure 14**.

The success of the cycle tracks depends on the connectivity to the Greenbelt on either side of the Boise River. There are ramps from the north side of Main St. to the Greenbelt on both sides of the Boise River. However, there are currently no ramps from the Greenbelt to the south side of Fairview Ave. These future connections are critical to providing a complete bicycle system in the area.

Figure 14. Proposed Cycle Tracks over the Boise River



* Method of bike lane protection is flexible and will be determined with detailed design

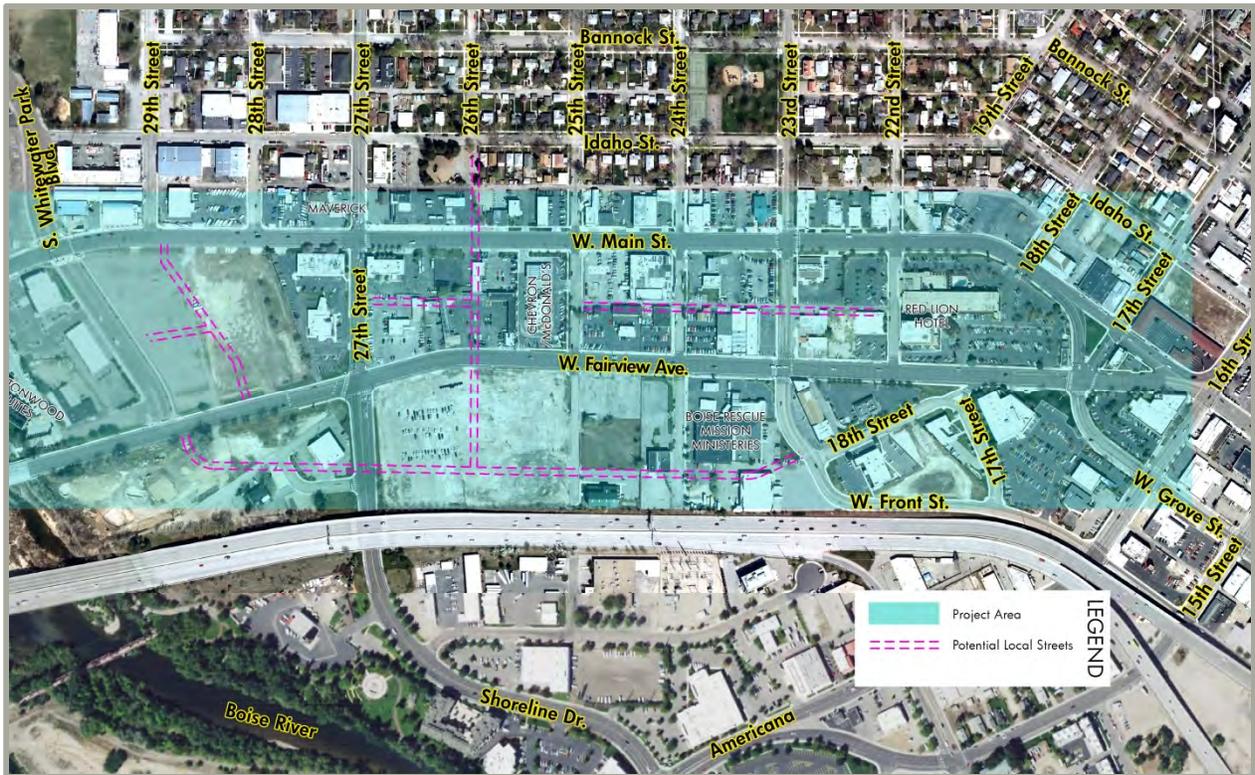
** See City of Boise streetscape requirements

Considered Local Streets

Considered Locations

The Fairview Ave. and Main St. area is primarily served by the one-way couplet. A network of local streets has been proposed by the City of Boise to decrease out of direction travel and increase connectivity for motorists, pedestrians, and bicyclists. The local streets will be jointly designed and then constructed by developers as the area redevelops. Connections and alignments of considered local streets shown in **Figure 15** are conceptual based on information from the City of Boise and actual locations will be refined through the redevelopment process.

Figure 15. Considered Local Streets



The City of Boise land exchange with LocalConstruct for the parcel east of Whitewater Park Blvd. between Fairview Ave. and Main St. includes the extension of 29th St. through the parcel and a mid-block local street connection to Whitewater Park Blvd. (see **Figure 9**).

Cross Sections

The mixed-use nature of anticipated development will allow potential local streets to serve all users to access the businesses and residences that will be established. The proposed cross sections will allow development to plan for and provide the appropriate local street features.

The local street that extends south from the Fairview Ave. / Whitewater Park Blvd. intersection and travels east, parallel to Fairview Ave. to 27th St., is tentatively named Fletcher St. after the existing street it may replace. This street, along with the extensions of 26th St. and 29th St., is assumed to function similar to the existing local streets in the area. These local streets should

be designed to the standards found in the *Livable Streets Design Guide*, but flexibility should be allowed within the proposed right-of-way to meet the needs of proposed mixed-use development.

A conceptual cross section for these streets is the Town Center Local from the ACHD *Livable Streets Design Guide*, shown in **Figure 16**. There is flexibility to vary the street features within the right-of-way width, including lane widths, pedestrian and bicycle treatments, and on-street parking. These local streets should be low speed and travel lanes could be designated as shared lanes for both bicyclists and motorists. Also, the materials and textures used for the street could differentiate the local streets from the arterials they connect to and contribute to the unique identity of the mixed-use developments they serve.

Figure 16. Mixed-Use Neighborhood Local Street Cross Section - Fletcher St., 26th St., and 29th St.



The considered local streets that run east and west approximately mid-block between Fairview Ave. and Main St. and between Fairview Ave. and I-184 Connector will also serve mixed-use neighborhood development and are a hybrid between a local street and an alley. Their purpose is to provide a public connection for slow traveling vehicles, bicycles, and pedestrians. Those located north of Fairview Ave. are

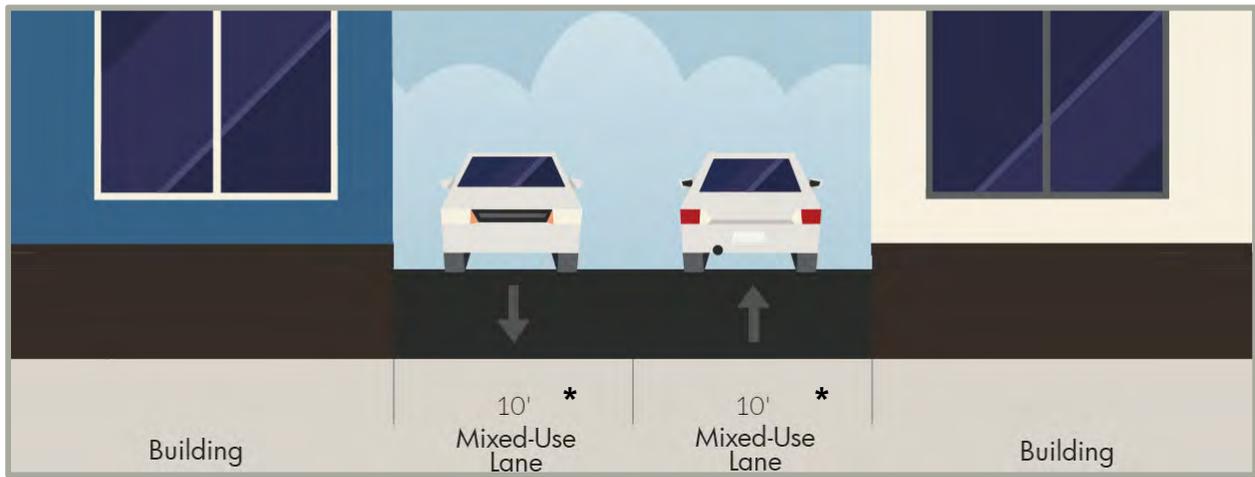
shown enhancing and extending existing alleyways behind existing developments and will only be updated when redevelopment of these parcels occur. The cross sections for these local streets should follow the standards in the *ACHD Policy Manual* Section 7210.3 New Alleys, which requires a minimum of 20-feet of right-of-way width for two-way traffic operation and emergency access.

Three conceptual cross sections for the east-west streets are shown in **Figure 17**. They are based on the *ACHD Policy Manual* standards and the *Livable Streets Design Guide*. Option A is a minimum width alley with 10-foot wide travel lanes in each direction. Option B adds 5-foot wide bike lanes to each side of Option A. Option C adds bike lanes and curb, gutter, and 5-foot wide sidewalks to Option A. Each option increases in width as more separation is added between travel modes.

As with Fletcher St., 26th St., and 29th St., these options give flexibility to vary the features within the right-of-way width, including lane widths and pedestrian and bicycle treatments. These local streets and alleyways should be low speed to accommodate the potential mix of vehicles, bicycles, and pedestrians. For these streets and alleyways to be successful, a mix of materials and textures, such as concrete and brick pavers, are needed to cue users that this is a different, shared travel space and contribute to the unique identity of the mixed-use developments they serve, as shown in the example in **Figure 18**.

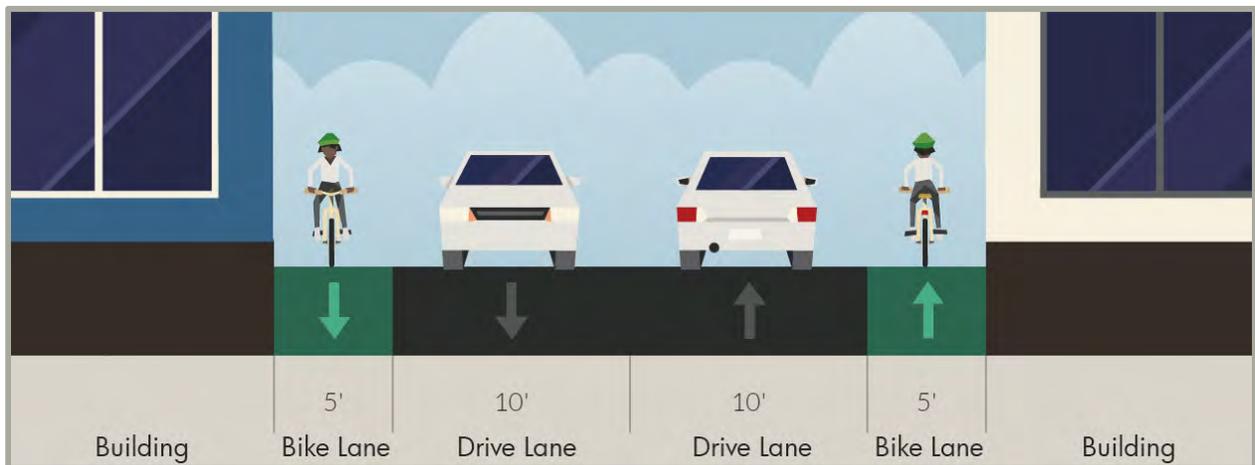
Figure 17. Mixed-Use Neighborhood Local Street Cross Section - East-West Streets and Alleyways

Option A



* Requires textural and material changes such as brick and concrete ribbons. See photo in Figure 18.

Option B



Option C

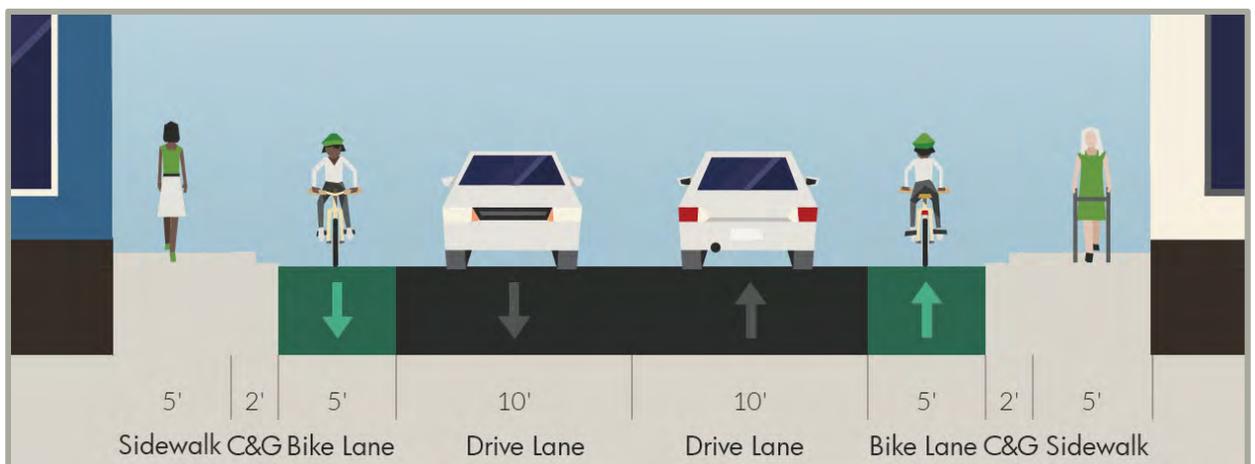


Figure 18. Mixed-Use Neighborhood Local Street – East-West Streets and Alleyways



All of the considered local streets and alleyways will be identified, designed, and the specific location determined through the development process. Developers will work with the City of Boise and ACHD to provide streets and alleyways that meet the concepts and requirements presented in the Plan.

Travel Demand Forecasting

Travel demand forecasts for the study area were developed from the COMPASS regional travel demand model following the methods and assumptions described in **Appendix C**. These forecasts were used to evaluate each reconfiguration concept to determine how it would serve future demand.

Lane Reconfiguration Alternatives

Three lane reconfiguration forecasts were developed to function with any of the lane reconfiguration options described above. They include:

- Alternative 1 - 2040 No-Build
 - This alternative maintains the existing one-way couplet and local street configurations.
- Alternative 2 - 2040 Build

- This alternative reduces the travel lanes on Fairview Ave. and Main St. from 4 to 3 between Whitewater Park Blvd. and 16th St. All local street configurations remain as they are now.
- Alternative 3 - 2040 Build with Local Streets
 - This alternative reduces the Fairview Ave. and Main St. travel lanes like Alternative 2 and adds the potential local street connections as shown in **Figure 15**.

Land Use Projections

Future Development

The technical team met with planners from the City of Boise, ACHD, and COMPASS to discuss future development plans and assumptions for input into the COMPASS regional travel demand model. Information from the *Blueprint Boise*, the city's comprehensive plan, was provided to



COMPASS for the latest demographic update to the model. After this discussion, the technical team and agencies agreed to move forward with the 2040 Communities in Motion funded network developed by COMPASS for the Plan analysis. Meeting notes for these meetings are found in **Appendix C**.

Forecast Data

Forecast AM and PM peak hour turning movement volumes at the signalized intersections and daily traffic volumes on streets for each lane reconfiguration alternative are presented in **Figures 19 through 21**. The forecast volumes are based on output from specific runs created for each lane reconfiguration alternative from the COMPASS (Daily and PM volumes) and ACHD (AM volumes) regional travel demand models.

Concepts Analysis

Lane Reconfiguration Alternatives

Details of the following analyses are found in **Appendix D**.

Comparison of Lane Reconfiguration Alternative Forecast Volumes

Comparing Alternative 1 (2040 No-Build) to Alternative 2 (2040 Build) and Alternative 3 (2040 Build with Local Streets), the major differences are found on Fairview Ave., Main St., Whitewater Park Blvd., and 27th St. **Table 5** expresses the volume change (as a percentage) c from Alternative 1.



Table 5. Summary of Volume Comparisons between Lane Reconfiguration Alternatives

Street	2040 AM Peak Hour Change in Forecast Volumes		2040 PM Peak Hour Change in Forecast Volumes	
	Alternative 2 / Alternative 1	Alternative 3 / Alternative 1	Alternative 2 / Alternative 1	Alternative 3 / Alternative 1
Fairview Ave.	-11%	-10%	-5%	-5%
Main St.	-2%	-3%	-14%	-13%
Whitewater Park Blvd.	-13%	+8%	+2%	+14% overall, 39% between Fairview & Main
27 th St.	+11%	-32%	-5%	-37% north of Local Street, +6% south of Local Street

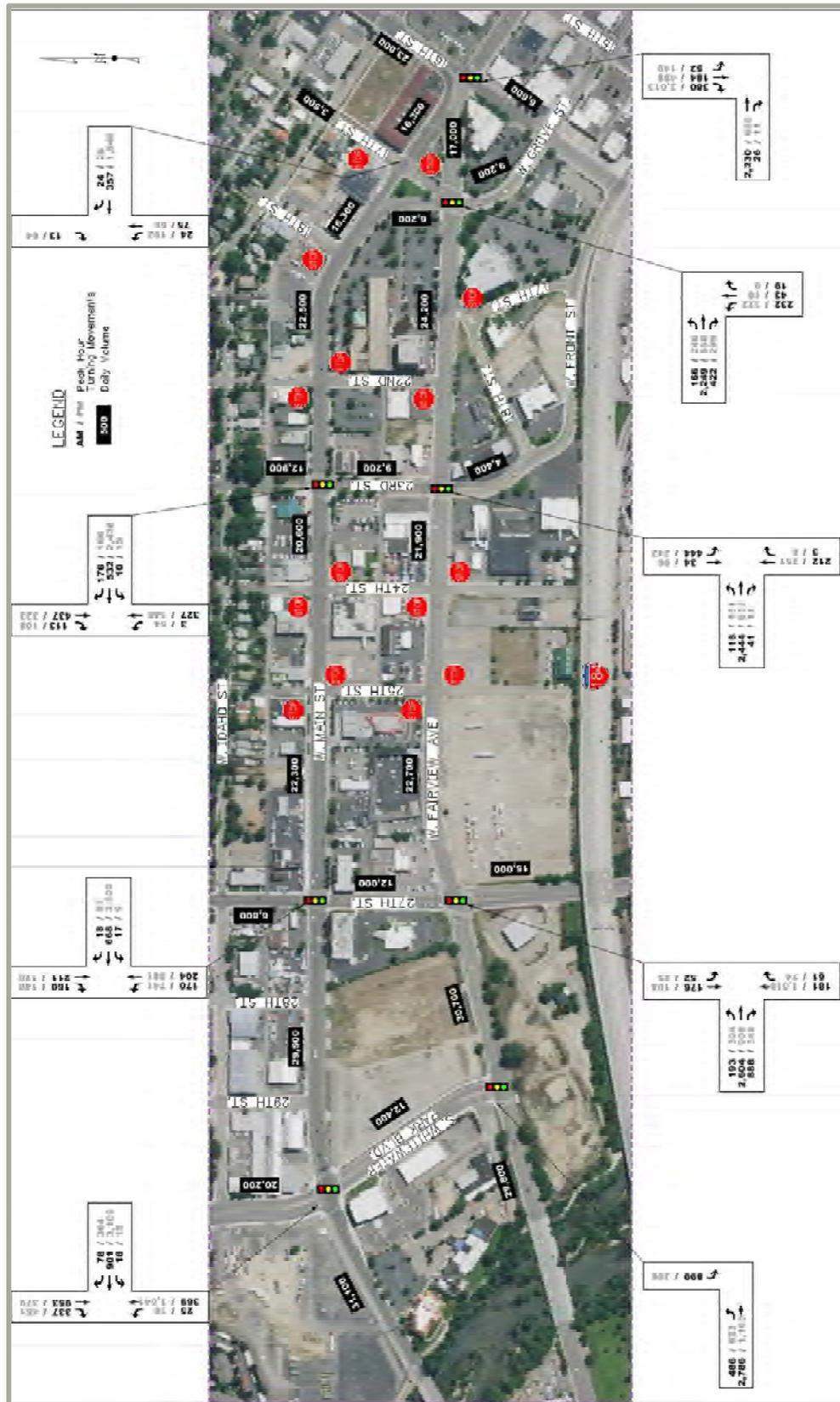
In comparing Alternative 2 to Alternative 1, the travel demand reduction in the AM peak hour is most likely because the lane reduction on Fairview Ave. reduces capacity in the eastbound direction, which is used as the commuting traffic travels to Boise. Some of the vehicles that travel south on Whitewater Park Blvd. to access Fairview Ave. in Alternative 1 use 27th St. and 23rd St. given Alternative 2 conditions to travel to Downtown Boise. Main St. still has excess capacity in the AM peak hour so there is not nearly as much rerouting.

In comparing Alternative 2 to Alternative 1, the reduction in the PM peak hour traffic is because the lane reduction on Main St. reduces capacity in the westbound direction which is needed as commuters leave Boise. However, the volumes traveling south on Whitewater Park Blvd. to access westbound Main St. remain the same in both Alternatives. Fairview Ave. still has excess capacity in the PM peak hour given Alternative 2 so there is not nearly as much rerouting.

Comparing Alternative 3 to Alternative 1 in the AM peak hour, the reduction in traffic on Fairview Ave. is because the lane reduction reduces overall capacity in the eastbound direction. Main St. still has excess capacity in the AM peak hour given Alternative 3 so there is not nearly as much rerouting. The potential Fletcher St. connection provides an attractive route for vehicles to bypass the 27th St. intersection with Fairview Ave. and access 27th St. traveling southbound, reducing the overall volumes on 27th St.

Comparing Alternative 3 to Alternative 1 in the PM peak hour, the volumes on Main St. decrease because the lane reduction reduces overall capacity in the westbound direction. The volumes on Main St. west of Whitewater Park Blvd. only decrease by 1% because the potential Fletcher St. connects 27th St. south of Fairview Ave. to Whitewater Park Blvd. Whitewater Park Blvd. volumes and 27th St. volumes south of the Fletcher St. connection increase because vehicles traveling northbound on 27th St. to access Main St. in Alternative 1 are rerouting to the potential Fletcher St. connection in Alternative 3, bypassing the intersections of 27th St. with Fairview Ave. and Main St. Overall the potential Fletcher St. connection provides relief for the lane reduction on Main St. in the PM peak hour. This connection will help improve the capacity constrained intersections on 27th St.

Figure 19. Lane Reconfiguration Alternative 1 Forecast Travel Demand Volumes



The other local streets proposed as part of Alternative 3 (depicted in **Figure 15**) are not forecast to carry more than 1,000 vehicles per day and no more than 400 vehicles in either peak hour. They will primarily serve as local access to abutting development and will not provide connectivity for regional traffic.

Travel Pattern Changes

Approximately 10% of all jobs in the regional model are located in Downtown Boise and the trips to and from these jobs are seeking the most efficient routes to the west. Main St. is one of the most efficient routes out of Downtown Boise in the PM peak hour as the I-184 Connector and State St. are essentially at capacity in 2040.

The reduction in trips in the project area was analyzed to determine where some trips that use Main St. in No-Build conditions reroute with the Build conditions when one travel lane is removed from Fairview Ave. and Main St. The local streets to the north that parallel Main St. are not assumed to be attractive to commuters as they are narrow with low speeds, on-street parking, and several stops at cross streets. Only the PM peak hour was analyzed as the diversion is larger during the evening commute and Main St. experiences more capacity issues.

Trips rerouting between Alternative 1 and Alternative 2 disperse from Main St. to parallel routes (State St., Pleasanton Ave.) to access Whitewater Park Blvd. and then Main St. westbound. There are fewer trips traveling westbound on Main St. through the entire project area but more turning from Whitewater Park Blvd. Several trips use alternate routes (State St., the I-184 Connector, and Americana Blvd.) to commute to the west.

The trip distribution in Alternatives 1 and 3 is very similar in the PM peak hour. Trips rerouting between Alternative 1 and Alternative 3 show much less dispersion than in Alternative 2. Only 49 use other routes (State St., the I-184 Connector, and Americana Blvd.) to travel west. The potential Fletcher St. connection reroutes traffic from 27th St. and Main St. to Whitewater Park Blvd. The through volumes on Main St. decrease in Alternative 3 but the turning volumes from Whitewater Park Blvd. to Main St. increase, keeping trips westbound on Main St. from the project area essentially the same between Alternatives 1 and 3.

Overall, the lane reduction proposed for Fairview Ave. and Main St. will cause some trips to divert to other routes. However, Main St. is still the preferred route for commuting trips from Downtown Boise destined west and the volumes west of Whitewater Park Blvd. do not change significantly between alternatives. Providing the potential Fletcher St. connection to 27th reduces the trip diversion to other streets by providing a more direct route to Main St.

Operational Analysis

The forecast traffic volumes for each lane reconfiguration alternative were analyzed to determine how the one-way couplet is estimated to operate under each condition. Operational capacity and travel time estimates were compared to accepted thresholds to determine the feasibility of Lane Reconfiguration Alternatives 2 and 3 versus Alternative 1 (No-Build). Analyses were conducted following *Highway Capacity Manual 2010* (HSM 2010) methods.

Streets

Forecasted 2040 volumes for each lane reconfiguration alternative were compared to applicable LOS thresholds for ACHD's arterial streets. To identify capacity deficiencies and street improvement needs, ACHD capacity thresholds are adopted at LOS D for Minor Arterials and LOS E for Principal Arterials. Details of thresholds and analysis are found in **Appendix D**.

There is a definite pattern between the two lane reconfiguration alternatives which follows the commute patterns of the one-way couplet and project area. In the AM peak hour, Fairview Ave. between Whitewater Park Blvd. and 27th St. exceeds ACHD's Principal Arterial LOS E threshold. The large volumes on this segment are due to vehicles coming south on Whitewater Park Blvd., turning left on Fairview Ave., and then turning right onto 27th St. The lowest forecast volume on this segment is found in Alternative 3 as the potential Fletcher St. connection takes a portion of the volumes that are destined to the south.

In the PM peak hour, Main St. west of 27th St. exceed ACHD's Principal Arterial LOS E threshold. The volumes are reduced from No-Build forecasts given Alternative 2 and Alternative 3 conditions but still exceed the threshold. Main St. west of 16th St. is also shown to exceed the LOS E threshold. However, this two-lane segment is a free flow movement from 16th St. that merges with two other lanes less than two blocks later. The first signal on this segment is at 23rd St., four blocks to the west. Therefore this segment is expected to operate adequately with two lanes despite the large forecasted volume.

Although not a precise measure of capacity, this method of analysis does offer a general indication of lane reconfiguration/reduction feasibility. Based on this "first cut" analysis, it is estimated that the Fairview Ave. and Main St. one-way couplet will operate acceptably under design year conditions. However this analysis does not take into account intersection delay nor how signal control along the couplet will coordinate and organize the movement of vehicles.

Intersections

The closely spaced signalized intersections along both Fairview Ave. and Main St. will have a large impact on capacity due to long queues effecting adjacent signalized intersections. This impact may be mitigated by improving signal timing and coordination between adjacent intersections. A micro simulation analysis of intersection capacity under each forecast lane reconfiguration alternative was conducted with the ACHD VISSIM model. ACHD has set intersection measures and capacity thresholds based on the volume-to-capacity (v/c) ratio which include LOS D = v/c ratio of 0.90 and LOS E = v/c ratio of 1.00. The measurements for each intersection include a v/c ratio = 0.90 for the total intersection and a v/c ratio = 1.00 for each lane group.

VISSIM simulations for Alternatives 2 and 3 assumed the following improvements based on increased volumes:

- Southbound Whitewater Park Blvd. at Main St. is updated to include one right turn lane, one shared through/right turn lane, and one through lane.
- Eastbound Fairview Ave. at Whitewater Park Blvd. is updated to include one left turn lane, one shared through/left turn lane, and two through lanes (the rightmost through lane is updated to a shared through/right turn lane in Alternative 3).



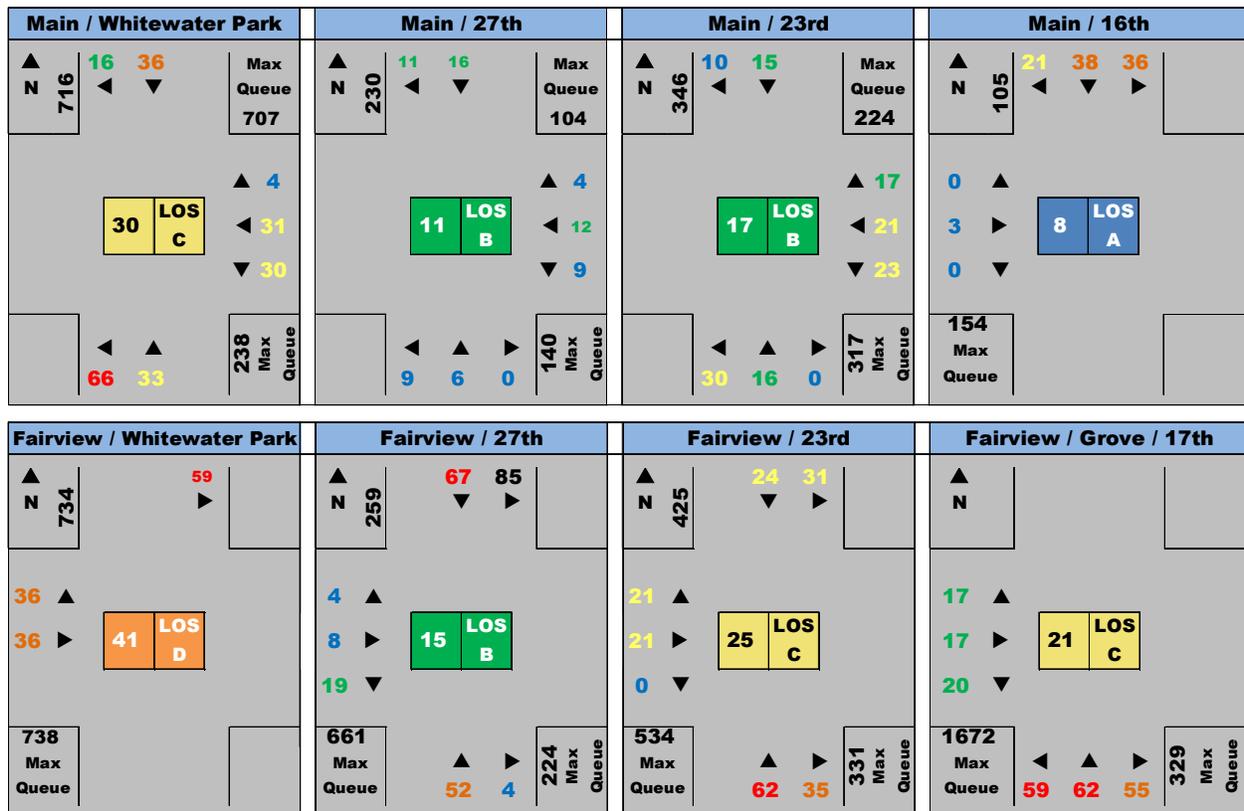
- 27th St. is modified to include one southbound left turn lane and one southbound through lane at Fairview Ave. Northbound at Main St., 27th has two left turn lanes and one through lane.
- The 27th St. / Fletcher St. intersection converts the inside through lane in the northbound and southbound directions on 27th St. to shared left turn/through lanes. The outside through lanes are converted to shared through/right turn lanes.

Intersection performance was calculated from the calibrated VISSIM model node results averaged across 10 simulation runs. The results are provided in **Figures 22 through 27**. These figures show the average delay by movement, intersection LOS, and maximum approach queue length for each project intersection under each lane reconfiguration alternative

AM Peak Hour

Intersection performance in the AM peak was relatively consistent across the alternatives. All intersections performed at LOS D or better with the recommended improvements above and signal timing updates. Alternative 1 AM peak hour results are shown in **Figure 22**.

Figure 22. Delay, LOS, and Maximum Approach Queue Length for Alternative 1 – 2040 No Build AM

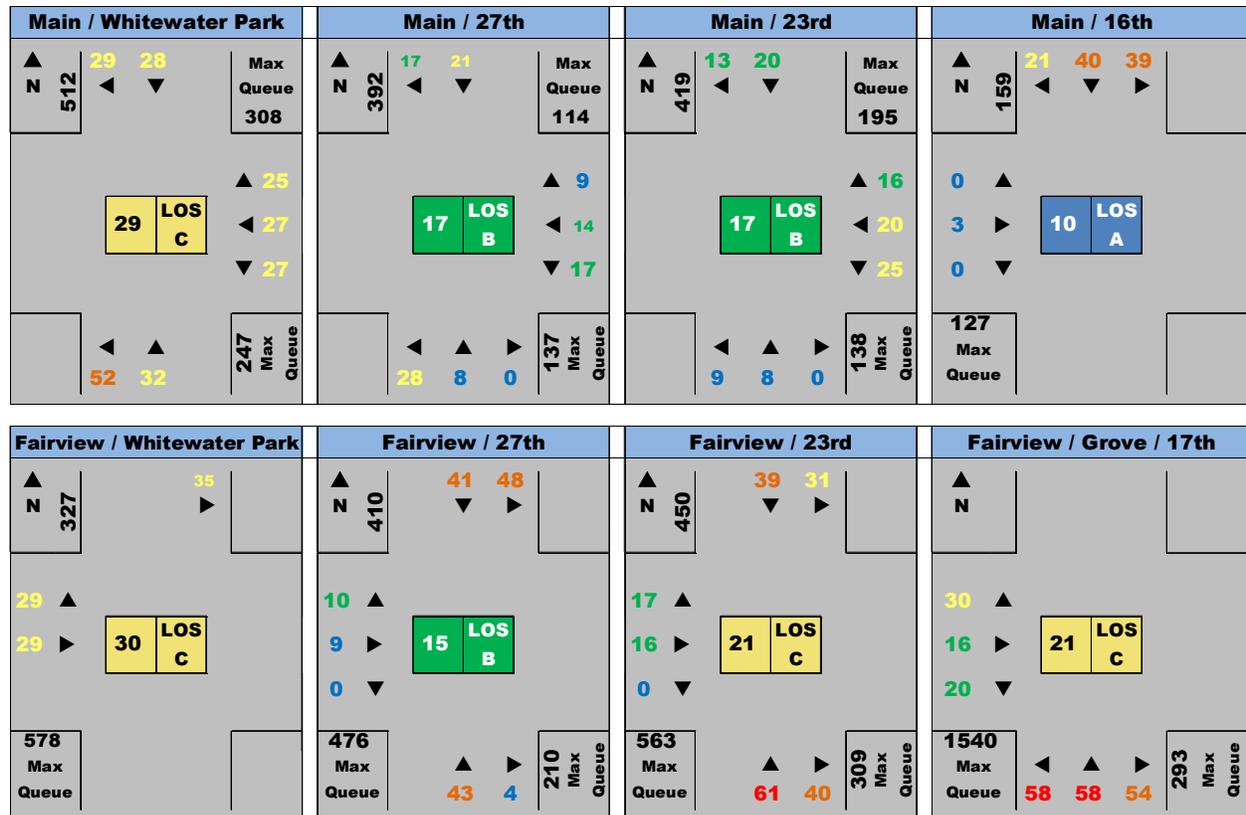


Approaches on Main St. where queue lengths are estimated to extend beyond a single block include Main St. on the westbound approach to Whitewater Park Blvd. Whitewater Park Blvd. on the southbound approach to Main St. The other intersections on Main St. appear to operate adequately with reasonable maximum queue length estimates. On Fairview Ave., queues may

extend beyond a single block on the approaches to 27th St., 23rd St., and 17th St. /Grove St. The queue estimated for the northbound 23rd St. approach to Fairview Ave. may extend the full block length between Fairview Ave. and Main St. Several cross street movements at the signalized intersections on Fairview Ave. operate at LOS E.

Alternative 2 AM peak hour results are shown in **Figure 23**.

Figure 23. Delay, LOS, and Maximum Approach Queue Length for Alternative 2 – 2040 Build PM



Main St. has no estimated maximum queues extending beyond a single block and no movements estimated to operate at LOS E. On Fairview Ave., queues may extend beyond a single block on the approaches to 27th St., 23rd St., and 17th St. /Grove St. The queue estimated for the northbound 27th St. and 23rd St. approaches to Fairview Ave. may extend the full block length between Fairview Ave. and Main St. The Fairview Ave. movements all operate at LOS C or better with good progressions to move the large through volumes along the corridor. Several cross street movements at the signalized intersections on Fairview Ave. operate at LOS E.



Alternative 3 AM peak hour results are shown in **Figure 24**.

Figure 24. Delay, LOS, and Maximum Approach Queue Length for Alternative 3 – 2040 Build with Local Streets AM

Main / Whitewater Park	Main / 27th	Main / 23rd	Main / 16th
▲ N 1805 ◀ 40 117 ▶ Max Queue 483 ▲ 26 ◀ 44 LOS D ▶ 30 ▼ 65 ◀ 105 ▶ 36 Max Queue 374	▲ N 217 ◀ 11 17 ▶ Max Queue 126 ▲ 11 ◀ 16 LOS B ▶ 18 ▼ 24 ◀ 11 ▶ 11 ▶ 0 Max Queue 71	▲ N 316 ◀ 9 12 ▶ Max Queue 221 ▲ 17 ◀ 15 LOS B ▶ 21 ▼ 21 ◀ 12 ▶ 7 ▶ 0 Max Queue 166	▲ N 124 ◀ 22 40 37 ▶ Max Queue 145 ▲ 0 ▶ 3 ▶ 9 LOS A ▼ 0 Max Queue 145

Fairview / Whitewater Park	Fairview / 27th	Fairview / 23rd	Fairview / Grove / 17th
▲ N 363 ▼ 9 41 ▶ Max Queue 1228 ▲ 39 ▶ 46 ▶ 45 LOS D ▶ 47 ▼ 47 Max Queue 236 ▲ 60 ▶ 56 Max Queue 236	▲ N 470 ▼ 68 68 ▶ Max Queue 524 ▲ 8 ▶ 9 ▶ 18 LOS B ▶ 26 ▼ 26 Max Queue 46 ▲ 39 ▶ 4 Max Queue 46	▲ N 270 ▼ 17 29 ▶ Max Queue 851 ▲ 30 ▶ 28 ▶ 30 LOS C ▶ 0 ▼ 0 Max Queue 264 ▲ 58 ▶ 47 Max Queue 264	▲ N ▼ 45 ▶ 19 ▶ 24 LOS C ▶ 23 ▼ 23 Max Queue 1750 ▲ 59 ▶ 64 ▶ 58 Max Queue 326 Max Queue 326

Fletcher / 27th
▲ N 0 ◀ 1 0 0 ▶ Max Queue 31 ▲ 0 ▶ 9 ▶ 2 LOS A ▶ 1 ▼ 1 Max Queue 130 ▲ 6 ▶ 0 ▶ 0 Max Queue 130

In Alternative 3, the additional traffic on Whitewater Park Blvd. increases delay and creates particularly long queues on Whitewater Park Blvd. approaching Main St. and on Fairview Ave. approaching Whitewater Park Blvd. Approaches on Main St. where queue lengths are estimated to extend beyond a single block include Main St. on the westbound approach to Whitewater Park Blvd., Whitewater Park Blvd. on the southbound approach to Main St. The other intersections on Main St. appear to operate adequately with reasonable maximum queue length estimates.

The queues on Fairview Ave. approaching Whitewater Park Blvd. are estimated to be excessive. Because this is the first coordinated signal on Fairview Ave., a longer queue is expected in order to build a platoon that will carry through the rest of the system. However, queues greater than 1,000 feet should be avoided. On Fairview Ave., queues may extend beyond a single block on the approaches to 27th St., 23rd St., and 17th St. / Grove St. The queue estimated for the 27th St. approach to Fairview Ave. may extend the full block length between Fairview Ave. and Main St. Long queues are also estimated to occur on Fairview Ave. at the intersection with 17th St. / Grove St. because signal coordination at this intersection is linked to the downtown central business district timings and not coordinated with intersections to the west. The Fairview Ave. movements all operate at LOS D or better with good progressions to move the large through volumes along the corridor.



Alternative 2 PM peak hour results are shown in **Figure 26**.

Figure 26. Delay, LOS, and Maximum Approach Queue Length for Alternative 2 – 2040 Build PM

Main / Whitewater Park		Main / 27th		Main / 23rd		Main / 16th					
▲ N 2458	74 58 ▲ ▼	Max Queue 1419	▲ N 473	76 95 ▲ ▼	Max Queue 248	▲ N 621	44 52 ▲ ▼	Max Queue 567	▲ N 348	23 35 34 ▲ ▼ ▶	
	37 LOS D	▲ 13 ▲ 16 ▼ 38		22 LOS C	▲ 11 ▲ 12 ▼ 11		28 LOS C	▲ 22 ▲ 20 ▼ 20	0 ▲ 12 ▶	24 LOS C	
	66 62 ▲ ▲	720 Max Queue		25 32 0 ▲ ▲ ▶	512 Max Queue		54 41 0 ▲ ▲ ▶	424 Max Queue		113 Max Queue	
Fairview / Whitewater Park		Fairview / 27th		Fairview / 23rd		Fairview / Grove / 17th					
▲ N 232	35 ▶		▲ N 58	1 38 ▼ ▶		▲ N 366	13 14 ▼ ▶		▲ N		
40 ▲ 26 ▶	33 LOS C		22 ▲ 12 ▶ 10 ▼	18 LOS B		16 ▲ 10 ▶ 8 ▼	13 LOS B		31 ▲ 13 ▶ 12 ▼	18 LOS B	
452 Max Queue			282 Max Queue	26 8 ▲ ▶	651 Max Queue	169 Max Queue	18 11 ▲ ▶	175 Max Queue	386 Max Queue	34 32 33 ▲ ▲ ▶	341 Max Queue

The Whitewater Park Blvd. intersection with Main St. is estimated to operate at LOS D given Alternative 2 PM peak conditions. Queue lengths on all approaches are estimated to extend beyond a single block with all Whitewater Park Blvd. movements estimated to operate at LOS E. The southbound right turn movements at the 27th St. / Main St. intersection are also estimated to operate at LOS E. Queue lengths at 27th St. and 23rd St. are estimated to extend the full block length between Fairview Ave. and Main St. The Fairview Ave. movements all operate at LOS D or better with good progressions to move the large through volumes along the corridor.

Alternative 3 PM peak hour results are shown in **Figure 27**.

Figure 27. Delay, LOS, and Maximum Approach Queue Length for Alternative 3 – 2040 Build with Local Streets PM

Main / Whitewater Park			Main / 27th			Main / 23rd			Main / 16th								
▲ N 800	72 ▲	53 ▼	Max Queue 965	▲ N 396	41 ▲	57 ▼	Max Queue 428	▲ N 587	41 ▲	49 ▼	Max Queue 717	▲ N 257	24 ▲	37 ▼	36 ▶	Max Queue	
	43 ▲	LOS D	▲ 20		26 ▲	LOS C	▲ 14		26 ▲	LOS C	▲ 23	0 ▲		24 ▲	LOS C		
	48 ▲	30 ▲	396 Max Queue		84 ▲	35 ▲	0 ▶	514 Max Queue		36 ▲	24 ▲	0 ▶	413 Max Queue		100 Max Queue		
Fairview / Whitewater Park			Fairview / 27th			Fairview / 23rd			Fairview / Grove / 17th								
▲ N 229	4 ▼	30 ▶	Max Queue	▲ N 146	22 ▼	59 ▶	Max Queue	▲ N 244	69 ▼	8 ▶	Max Queue	▲ N				Max Queue	
44 ▲	36 ▶	26 ▼	35 ▲	LOS D	11 ▲	12 ▶	LOS B	15 ▲	8 ▶	8 ▼	22 ▲	LOS C	28 ▲	11 ▶	10 ▼	18 ▲	LOS B
691 Max Queue	28 ▲	7 ▶	247 Max Queue	271 Max Queue	20 ▲	2 ▶	340 Max Queue	211 Max Queue	68 ▲	53 ▶	332 Max Queue	412 Max Queue	35 ▲	0 ▶	32 ▶	329 Max Queue	

Fletcher St. / 27th								
▲ N 209	15 ▲	14 ▼	0 ▶	Max Queue				
27 ▲	30 ▶	1 ▼	12 ▲	LOS B	▲ 32	▲ 27	▼ 0	Max Queue
67 Max Queue	9 ▲	10 ▲	8 ▶	468 Max Queue				

In Alternative 3, the additional traffic on Whitewater Park Blvd. increases delay and creates particularly long queues on Whitewater Park Blvd. approaching Main St. and on Main St. However, queue lengths are shorter than Alternative 2. Queues are estimated to extend beyond a single block on Main St. from the Whitewater Park Blvd. intersection. A large queue may form on Whitewater Park Blvd. on the southbound approach to Main St with improved movement LOS from Alternative 2. The other intersections on Main St. appear to operate adequately with reasonable maximum queue length estimates. Queue lengths at 27th St. and 23rd St. are estimated to extend the full block length between Fairview Ave. and Main St. This is due to reduced volumes on Main St. in this alternative as well as improvements at the Whitewater Park Blvd. and 27th St. intersections. The Fairview Ave. movements all operate at LOS D or better with good progressions to move the large through volumes along the corridor. Individual cross street movements at the 27th St. and 23rd St. intersections are estimated to operate at LOS E.

Recommended Improvements for Alternative 3

Excessive queue lengths estimated for Alternatives 3 conditions were found due to the potential Fletcher St. connection between Whitewater Park Blvd. and 27th St. These may be mitigated with the following improvements:

- Fairview Ave.
 - Add a right turn bay on Fairview Ave. at Whitewater Park Blvd. / Fletcher St. to reduce the disruption right turns have on through traffic. This improvement would require a fifth lane.
 - Add a right turn bay on Fairview Ave at 17th St / Grove St. This would need to be designed to interact well with the bus pull out just west of the intersection.
 - Refine signal timings, particularly on Fairview Ave. at Chinden Blvd. and at 17th St / Grove St. and coordinate project signalized intersections with the signal at Fairview Ave. / Chinden Blvd. This will allow some of the traffic to arrive in a platoon. Since the volume is split between Fairview Ave. and Chinden Blvd., queue lengths will likely be shorter than when they are concentrated at Fairview Ave. / Whitewater Park Blvd.
 - Consider setting the Fairview Ave. and Main St. cycle lengths at twice the current cycle length in the downtown central business district in order to improve the transition at Fairview Ave. / 17th St. / Grove St.
- Main St.
 - Refine signal timings, particularly on Main St. at Whitewater Park Blvd. and 27th St. The northbound Whitewater Park Blvd. movement may be improved by coordinating with the eastbound left turn at Fairview Ave. / Whitewater Park Blvd. The Main St. / 27th St. intersection could also benefit from improved coordination in the northbound direction.
 - Add a dedicated westbound left turn bay at Main St. / Whitewater Park Blvd. when future development produces enough left turning demand

Provisions for bicycle lane continuity must be addressed if dedicated turn lanes are added to the basic number of through lanes for Alternatives 2 and 3. Also, on-street parking cannot be permitted in the turn bay areas.

Travel Times

Travel times in the lane reconfiguration alternatives produced mixed results when compared with existing travel times, as **Table 6** indicates. Travel times were estimated from the VISSIM micro-simulation models for each alternative and these estimates are tied directly to the weekday commute. Fairview Ave. is busier in the morning as people commute into downtown. Main St. is busier in the afternoon as people commute home.

Table 6. Lane Reconfiguration Alternatives Travel Time Comparison

Street	2015 Observed Travel Times (Seconds)	Alternative 1 Travel Times (Seconds)	Alternative 2 Travel Times (Seconds)	Alternative 3 Travel Times (Seconds)
Fairview Ave. (AM)	132	108	109	119
Main St. (AM)	142	140	142	138
Fairview Ave. (PM)	109	112	115	105
Main St. (PM)	139	124	118	149

On Main St., 2040 travel times were consistently higher across alternatives in the AM peak hour, with the heavier volumes on Fairview Ave. The highest potential for improvement in the AM peak hour is apparent on Fairview Ave., with every 2040 alternative producing lower travel times than existing.

The PM peak hour travel times on Fairview Ave. were consistent between existing and the 2040 alternatives. On Main St., Alternative 1 and Alternative 2 travel times in the PM peak hour were lower than existing while Alternative 3 travel time is estimated to be about 10 seconds longer than existing.

These estimated travel times are consistent with the intersection results shown above. The reduced travel time for Alternative 2 can be attributed to lower traffic volume on Main St. (about about 800 fewer vehicles) as vehicles divert to other routes. The Alternative 3 volumes on Whitewater Park Blvd. turning onto Main St. increase significantly and require more green time at the Main St. / Whitewater Park Blvd. intersection, reducing green time for through movements on Main St. This doubled travel time on the segment between 27th St. and Whitewater Park Blvd. and has the longest travel time of all the alternatives in the PM peak hour.

The signal timing adjustments made in the simulation models to move vehicles more efficiently along Fairview Ave. and Main St. impact cross street traffic by increasing their wait time and delay. Specific signal timing adjustments should be made regularly (every 2 to 5 years) along these corridors as traffic volumes and patterns changes.

One-Way Couplet Lane Reconfiguration Options

Lane reconfiguration options are applicable to Alternatives 2 and 3 to upgrade bicycle lane and on-street parking. A qualitative analysis of each describes benefits and issues for each one.



Option A - On-street parking on both sides/bike lane

The benefits of this option include providing on-street parking on both sides of the street, promoting better access to businesses and alleviates parking on local neighborhood streets. The proposed bicycle lane is wider than existing and pedestrians have shorter distance to cross with the removed travel lane. A potential issue is that the reduction in travel lanes may divert traffic to other streets. Also, the bicycle lane is not protected from vehicle traffic and there may be more conflicts between drivers, parking, and bicycles.

Option B - On-street parking on one side of the street/protected bike lane

This option only provides on-street parking on the left side of the street, providing less parking relief for adjacent neighborhood streets. It promotes better access to businesses while enhancing the bike lane and providing more protection for bicyclists from traffic. Pedestrians have shorter distance to cross the arterials. As with Option A, the reduction in travel lanes may divert traffic to other streets.

Option C - On-street parking both sides/parking protected bike lane

The benefits of this option include providing on-street parking on both sides of street, promoting better access to businesses and alleviates parking congestion on local neighborhood streets. The proposed bicycle lane is the same 5-foot width as existing and is enhanced by providing more protection for bicyclists from traffic. Conflicts between drivers and passengers leaving parked cars and bicyclists will increase as the drivers leave their vehicles and walk across the bike lane to access businesses. Pedestrians have shorter distance to cross with the removed travel lane. The same potential for traffic to divert to other streets exists with this option.

Public and Stakeholder Involvement

Public and stakeholder involvement was critical to the development of the Plan as stakeholder, business, and public feedback and support were received. This feedback helped to refine lane reconfiguration options, potential local street connections and cross sections, and guide the technical team to select the recommended Plan improvements.

Approach

The public involvement approach included:

- Stakeholder meetings
- Door-to-door flier delivery to all property owners in the area to make them aware of the Plan.
- Two public information meetings (PIM)
 - June 2, 2016
 - August 11, 2016
- Multi-agency coordination meetings and presentations

- Web comment forms and posting of materials

Summaries of stakeholder and public involvement activities are found in **Appendix E**. Public information materials are found on ACHD's website at:

<http://www.achdidaho.org/Projects/PublicProject.aspx?ProjectID=378>

Stakeholder Meetings

ACHD initiated a number of one-on-one meetings with property owners and businesses within and adjacent to the Plan area as an initial outreach step. The goal of the meetings was to inform stakeholders about the project firsthand and convey the most accurate information to date.

Working in conjunction with City of Boise planning staff, ACHD identified twelve key businesses requiring one-on-one meetings at met with them the week of April 11, 2016.

The project team developed a flipbook to illustrate the various elements of the Plan to stakeholders. At the onset of each meeting, time was taken to carefully explain how the project evolved from a recommendation in the *30th Street Area Master Plan*. The team also discussed the city's desire for the development of accessible, vibrant, walkable, people-oriented, mixed-use neighborhoods in the area.

Key elements of the project were covered and current and future development in the area was highlighted. The considered connections to the local street network were discussed and the City expressed its desire to improve connectivity to proposed development and increase mobility for motorists, pedestrians, and bicyclists. The team explained that the streets would not be located, designed or built by the City of Boise or ACHD but would be provided by developers through the redevelopment process. Stakeholders were assured that current businesses and properties will not be affected by proposed local streets unless an owner chooses to redevelop or sell the property in the future. It was emphasized that any changes to roadways and the surrounding local streets are intended to have a positive effect on mobility and economic development.

Response to the proposal was overwhelmingly positive. All of the stakeholders expressed support for the reconfiguration of the lanes to add on-street parking. Some business owners, particularly those on the north side of Main St., shared concerns about on-street parking blocking business driveways and becoming a sight distance issue for drivers exiting business driveways. Most of the businesses were also in favor of improving bicycle and pedestrian connectivity and several noted instances of bicyclists traveling against vehicle traffic on the one-way couplet, pointing to the need for more positive guidance. All of the stakeholders were invited to the PIMs. Some developers had concerns about the considered local streets not working with their planned developments.

Additional follow-up meetings with stakeholders with specific questions were held by ACHD and the City of Boise following each PIM.



Public Information Meetings

PIM # 1 Summary

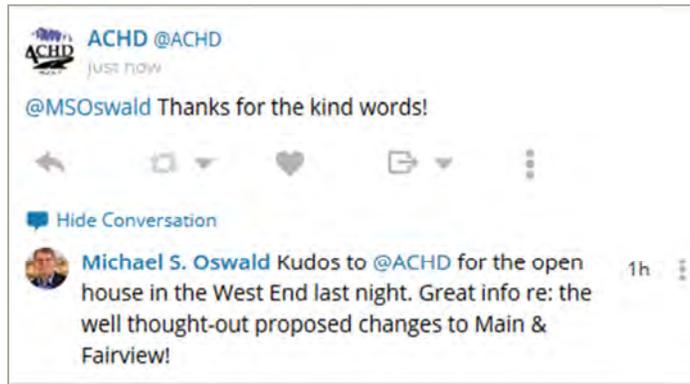
The PIM # 1 was held on June 2, 2016, at the First Congressional United Church of Christ, located just north of the Plan area. It was an open house that introduced the Plan to the public, including the proposed lane reconfiguration options on Fairview Ave. and Main St and potential local street connections and examples.

ACHD used a variety of methods to inform the public and adjacent property owners about the public meeting, including postcards via mail, email, display ads in the Idaho Statesman, sandwich signs placed in the Plan area, social media, and a project flyer was distributed door-to-door to businesses in the project area.

Three members of the local media attended and covered the meeting including reporters from:

- KTVB Channel 7
- KBOI Channel 2
- Boise Weekly

Coverage was very positive and the citizens interviewed were enthusiastic about what is being considered.



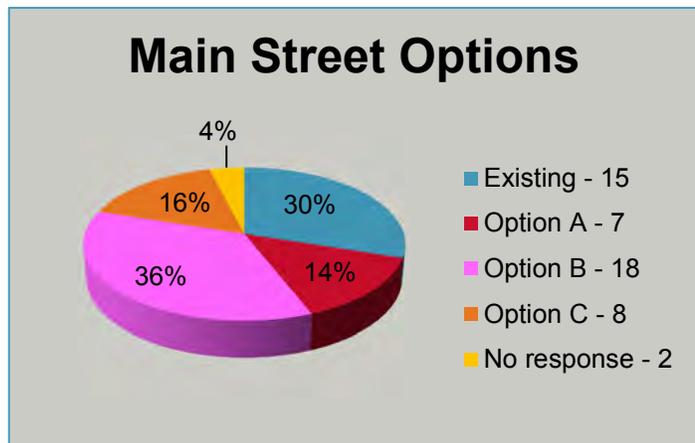
A total of 59 people signed in at the meeting. Comment forms were provided at the meeting, on the Plan webpage, and as part of an online survey. ACHD received a total of sixty comments; thirty comments were submitted at the meeting and seven were submitted via mail and email. In addition, twenty-three people responded to an online survey about the project. Comments were accepted from June 2 to June 16, 2016.

The following is a summary of comments received from PIM # 1 regarding preferred options for lane reconfiguration and bicycle treatments. Additional questions and comments were included and this summary is only intended to be representative of main themes expressed by the public. Reading comments in their entirety will give a fuller picture of public input and they are available in the PIM # 1 Summary in **Appendix E**.

Which option do you prefer for Main Street?

Attendees viewed display boards showing four options:

- Existing Configuration
- Option A – On-street parking on both sides with a bike lane

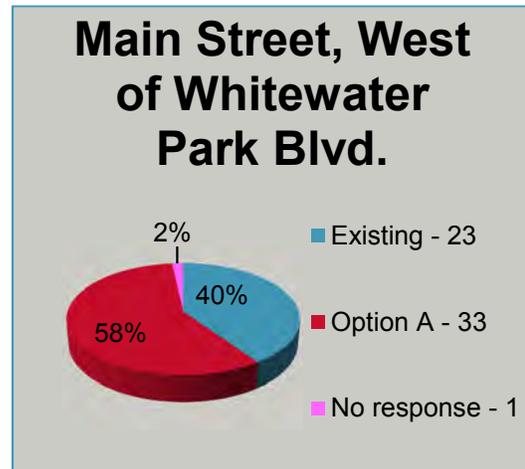


- Option B – On-street parking on one side of the street with a buffered bike lane
- Option C – On-street parking both sides of the street with a parking protected bike lane

Which option do you prefer for Main Street, west of Whitewater Park Boulevard?

Attendees viewed display boards showing two options:

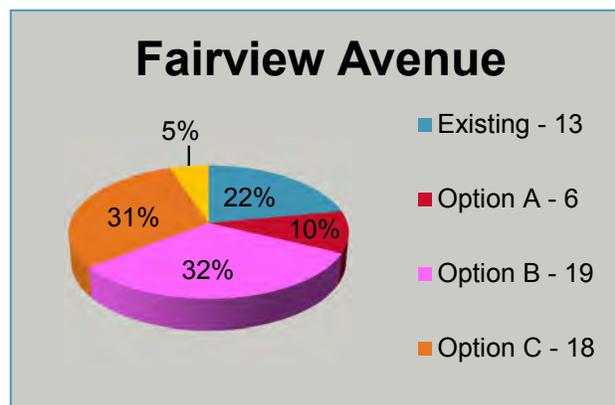
- Existing
- Option A – Two-way cycle track



Which option do you prefer for Fairview Avenue?

Attendees viewed display boards showing four options:

- Existing Configuration
- Option A – On-street parking on both sides with a bike lane
- Option B – On-street parking on one side of the street with a buffered bike lane
- Option C – On-street parking both sides of the street with a parking protected bike lane



For Main St., the public preferred Option B between 16th St. and Whitewater Park Blvd. They also preferred the two-way cycle track west of Whitewater Park Blvd. Option B and Option C lane reconfigurations were a virtual tie for Fairview Ave.

These results, along with the comments received, led the technical team to refine the options and investigate the on-street parking availability more closely in preparation for PIM # 2, as described under Concept Refinement.

PIM # 2 Summary

The PIM # 2 was held on August 11, 2016, at the Red Lion Boise Downtowner Hotel located in the Plan area. The focus of PIM # 2 was to present feedback from PIM # 1 on the options preferred by the public, gather specific feedback on the configuration of local streets and alleyways, and present refined options for bike lanes and the location of on-street parking, including the number of potential parking spaces available on Fairview Ave. and Main St. with the proposed reconfigurations.

ACHD used the same methods to inform the public and adjacent property owners about PIM # 2 as they used for PIM # 1.

Two members of the local media attended and covered the meeting including reporters from:

- KBOI Channel 2
- Boise Weekly

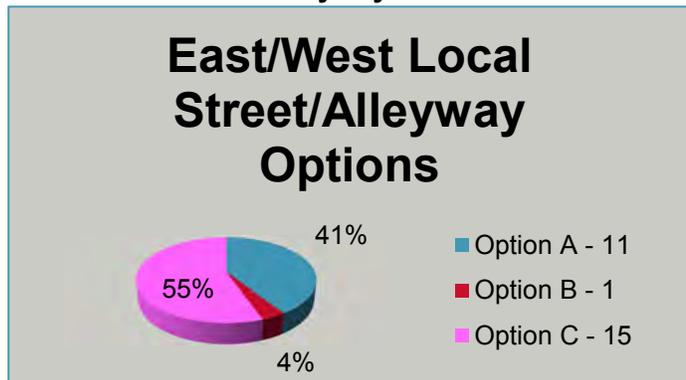
A total of 27 people signed in at the meeting, the majority of who were business owners and developers in the Plan area. Comment forms were provided at the meeting, on the Plan webpage, and as part of an online survey. ACHD received a total of forty-four comments; thirteen comments were submitted at the meeting and thirty-one people responded to an online survey about the project. Comments were accepted from August 11 to August 25, 2016.

The following is a summary of comments received from PIM # 2 regarding preferred options for lane reconfiguration and bicycle treatments. Additional questions and comments were included and this summary is only intended to be representative of main themes expressed by the public. Reading comments in their entirety will give a fuller picture of public input and they are available in the PIM # 1 Summary in **Appendix E**.

Which option do you prefer for East/West local streets and alleyways?

Attendees viewed display boards showing four options:

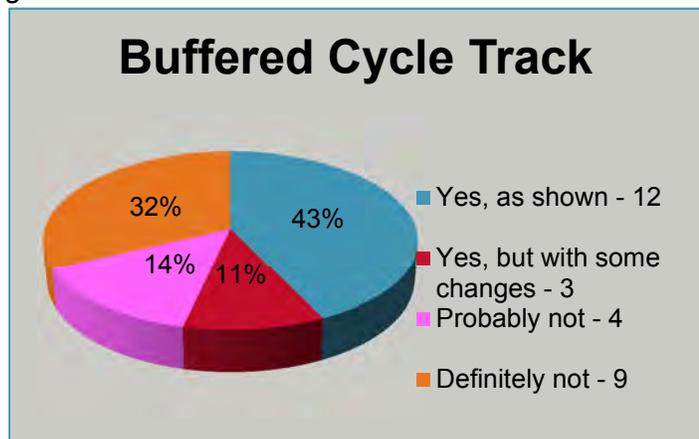
- Option A – Two 10 foot travel lanes
- Option B – Two 10 foot travel lanes with 5 foot bike lanes on both sides
- Option C – Two 10 foot travel lanes with 5 foot bike lanes on both sides, plus two feet of curb and gutter and 5 foot sidewalks on both sides.



Do you support a buffered two-way cycle track on Fairview between Garden Street and east of the Boise River?

Attendees viewed display board illustrating:

- A two-way cycle track for Main Street between the connections to the Greenbelt west of Whitewater Park Blvd. in anticipation of increased bike traffic with the future development of CWI.
- A buffered two-way cycle track on Fairview Ave. over the Boise River between potential connections to the Greenbelt.



Most of the respondents preferred the full street section for the east-west streets and alleyways which included travel lanes, bike lanes, and curb, gutter and sidewalk. They also preferred the cycle tracks for Fairview Ave. and Main St. as shown in **Figure 14**.

These results, along with the comments received, led the technical team to refine the options for the final Plan adoption, as described under Concept Refinement.

Concept Refinement

Concept Refinement Following PIM # 1

The technical team met following the comment period closure for PIM # 1 to discuss the comments received and select the options for additional analysis and presentation at PIM # 2

For Main St., the public preferred the Option B lane reconfiguration between 16th St. and Whitewater Park Blvd. They did not like the parking protected bike lane and comments cited safety and visibility concerns. The businesses along Main St. expressed concerns with parking on the north side of Main St. because of several existing driveways and sight distance concerns with drivers exiting those driveways. If parking is limited it will be expensive and difficult to enforce. Also, the reconfigured through lanes need to be shifted to match up with the lanes over the Main St. Boise River bridge, which will be more difficult with Option C. The technical team selected Option B to be implemented on Main St. pending additional on-street parking analysis.

The Option B and Option C lane reconfigurations for Fairview Ave. were a virtual tie with the public. Fairview Ave. has more opportunity to provide parking on both sides of the street. The development of on-street parking can be phased and a protected bike lane in the short term and adjustments to pavement markings and signing to develop a parking protected bike lane in the future. The City of Boise explained its vision for the area to be dynamic and open for all modes of travel. The developments they envision will encourage more bicycling opportunities and will naturally slow down through traffic. The parking on the south side of Fairview Ave. can be phased as development occurs. The technical team selected Option B for Fairview Ave. in the short term and Option C to be implemented the long term.

Additional analysis of the potential on-street parking availability along Fairview Ave. and Main St. was completed to help determine which options to select moving forward.

On-Street Parking Analysis

Additional analysis identified where on-street parking is feasible on each side of Fairview Ave. and Main St. with sight distance requirements at existing and proposed local street intersections, driveways, and with left and right turn bay development at major intersections. A detailed memo of the analysis is found in **Appendix F** with a summary provided here.

ACHD and City of Boise intersection sight distance and on-street parking standards were applied to Fairview Ave. and Main St. in the Plan area to identify areas available for on-street parking. All existing and proposed local street intersections with Fairview Ave. and Main St. were assumed to be in place in the future. Existing driveways were assumed to remain in place unless they currently serve vacant lots. In those cases it was assumed future access would be

from local streets rather than Fairview Ave. and Main St. No on-street parking was assumed to be allowed west of Whitewater Park Blvd.

Fairview Ave. has several long stretches that can provide several on-street parking stalls in a line on both sides of the street, as shown in **Figure 28**. Overall it is estimated 68 stalls can be provided on the north side of Fairview Ave. and 70 stalls can be provided on the south side under the current assumptions. An example of how the on-street parking may be installed on both sides of Fairview Ave. with public intersections and private driveway is shown in **Figure 28**. The proposed number of parking spaces is the same whether Option B or Option C is implemented.

Figure 28. Fairview Ave. Potential On-Street Parking Spaces & Example



Main St. has fewer long stretches than Fairview Ave. that can provide on-street parking stalls due to public intersections and driveways, as shown in **Figure 29**. Most of the available length only allows a few stalls at a time, especially on the north side of the street which is much more constrained by closely spaced driveways. Overall it is estimated 61 stalls can be provided on the south side of Main St. and only 30 stalls can be provided on the north side under the current assumptions. An example of how the on-street parking may be installed on the south side of Main St. with public intersections and private driveway is also shown in **Figure 29**.

Figure 29. Main St. Potential On-Street Parking Spaces & Example



The results of the on-street parking analysis confirmed the preferred concepts from the public comment. The technical team selected Option B for implementation on Fairview Ave. for the short term and Option C for the long term when more development occurs along the south and west end of Fairview Ave.

Cycle Track Concept

The two-way cycle track option for Main St. west of Whitewater Park Blvd. was preferred by the public. The technical team discussed that the CWI development will most likely be a big draw for bicyclists in the future. While CWI will have access from the Greenbelt on the east side of the Boise River, there are concerns with how bicycles traveling in the opposite direction will be controlled through the signalized intersections at Garden St. and Whitewater Park Blvd. Also,

connections from the Fairview Ave. and Main St. bike lanes to the Greenbelt are important and need to be addressed to provide a complete bicycle system in the Plan area.

The technical team conducted a site visit to determine what connections to and from Fairview Ave. and Main St. to the Greenbelt exist and if any additional connections need to be added. The potential benefits and drawbacks to providing two-way cycle tracks on both streets were also reviewed and details of the site visit are found in **Appendix G**.

The team recommended providing the two-way cycle track on Main St. from Garden St. to the eastern Greenbelt connection. Bicyclists using that lane will be directed to turn left onto the ramp to access the Greenbelt and adjacent uses, including CWI. This will require a curb cut approach for bicyclists at the east Greenbelt connection to access Main St. This will avoid the control issues at the Main St. /Whitewater Park Blvd. intersection. The eastbound bicycle lane could be extended to the proposed VRT bus stop on Main St. in the future.

Currently there are no connections from the Greenbelt paths on both sides of the Boise River the south side of Fairview Ave. where the existing bicycle lane is located. There are “short cut” trails cut where people are walking and biking from the Greenbelt up to Fairview Ave. The



15th St. cycle track , Washington, D.C.

Source: Beyond DC

sidewalk adjacent to the bike lane has a high curb (8-12”) on the Fairview Ave. Bridge but no sidewalk extending east and west from the bridge. A connection was constructed from the Greenbelt path on the west side of the Boise River to the existing sidewalk on the north side of Fairview Ave. A two-way cycle track could also be provided on Fairview Ave. from Garden St. to the Greenbelt path on the east side of the Boise River. Potential connections to the Greenbelt should be provided to the proposed cycle track for full connectivity in the future.

As a result of the field visit and investigations, the technical team expanded the bicycle concepts to include cycle tracks on both Fairview Ave. and Main St. from Garden St. to the Greenbelt path on the east side of the Boise River as shown in **Figure 14. Proposed Cycle Tracks over the Boise River**.

Local Street Cross Sections

The technical team reviewed comments on the proposed local street cross sections and decided to show specific dimensions for right-of-way for each type (Fletcher St. and 26th St. and the east-west alleyways and streets) with flexibility inside the right-of-way limits to allow features to be modified as needed for proposed development. This will allow developers to plan for and provide the appropriate local street features. An example is the approved LocalConstruct development that is providing local streets with angled parking because it best meets their development needs while fitting the vision for the area.

The technical team agreed to propose the the Town Center Local from the ACHD *Complete Streets Policy* for Fletcher St. and 26th St. as shown in **Figure 16**. The alleyways should meet

local requirements to have 20-feet of paved surface for emergency access and two-way traffic. The technical team decided to present options at PIM # 2 for the alleyways as shown in **Figure 18**.

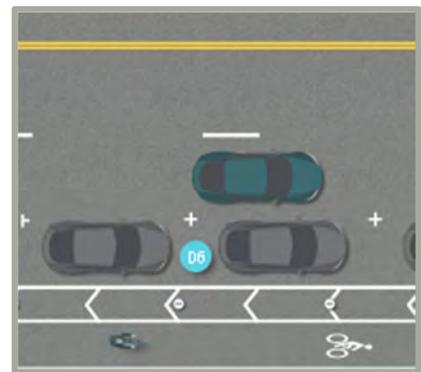
Concept Refinement Following PIM # 2

The technical team met following the comment period closure for PIM # 2 to discuss the comments received and select the final concepts for adoption in the Plan.

The preferred Option B lane reconfiguration for Main St. between 16th St. and Whitewater Park Blvd. was confirmed for implementation by the public and business owners. For Fairview Ave., the consensus among the business owners and developers was there is no need for a short-term Option B on Fairview Ave. and Option C should be implemented by ACHD as soon as practical.

Protected Bike Lanes

The technical team discussed the buffered or protected bike lanes and whether a painted buffer with channelizing posts as the only protection for the cycle track was sufficient. ACHD explained that calling it a protected bike lane versus a buffered bike lane allows more flexibility to install a more robust protection system in the future, such as a barrier or other positive separation for bikes, if needed. The descriptions of the bike lanes were updated to “protected” for all of the options, including both cycle tracks.



Example of parking protected bike lane

Source: FHWA *Separated Bike Lane Planning and Design Guide*

Fletcher St. Connection

The potential Fletcher St. connection between Whitewater Park Blvd. and 27th St. has proven to be a critical piece of the network in the operational analyses. There are many benefits for the Fairview Ave. and Main St. one-way couplet and other arterials as this connection diverts a significant amount of traffic from 27th St. and Main St. However, the forecast travel demand is estimated to be so great (approximately 9,000 trips per day) that a local street section, such as the Town Center Local shown in **Figure 17** may not be appropriate.

ACHD investigated the appropriate functional classification for the Fletcher St. connection based on the significant volume of traffic it is estimated to carry and the regional significance it may have. It essentially becomes an extension of Whitewater Park Blvd., a Town Center /Minor Arterial, to 27th St., another Town Center /Minor Arterial. Classifying Fletcher St. as an arterial may be most appropriate but does not fit the intended use of the street and planned adjacent land uses. The arterial classification will require greater offsets and landscape requirements, which may make redevelopment of the area around Fletcher St. infeasible. ACHD’s memo on Fletcher St. is found in **Appendix H**.

The City’s goals for Fletcher St. are to provide connectivity between the one-way couplet, consolidate parcels and access, and promote other transportation modes. The City would like to keep the options open to be flexible with future development. The operational analysis

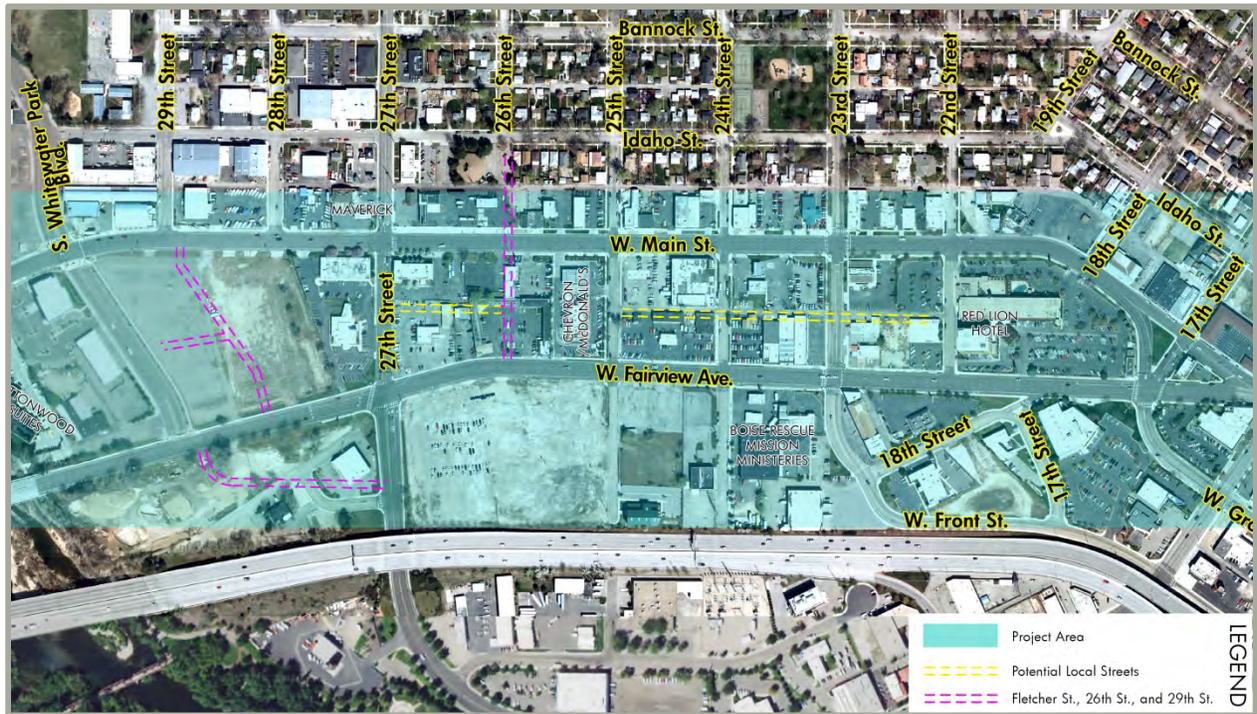
completed for the Plan showed that the Fairview Ave. and Main St. intersections and surrounding streets can operate acceptably with or without the Fletcher St. connection. The technical team discussed several options to modify or restrict the street to reduce the estimated traffic volume diversion in order to meet the objectives of this Plan. There are several ways to accomplish this but some are more intrusive on developable land within the adjacent parcels than others. The technical team recommended that ACHD and the City of Boise work with proposed future development for the parcels to the south of Fairview Ave. to design and construct an option that restricts traffic diversion while meeting the needs of the proposed development. The technical team also agreed to have the agencies hold additional meetings with adjacent property and business owners before any proposed redevelopment to discuss the Fletcher St. options in more detail.

Local Streets

Location

ACHD staff members of the technical team met with potential developers in the Plan area. A few developers expressed they did not agree with the considered local streets shown running through their properties at the PIMs, specifically those south of Fairview Ave. between 27th St. and 23rd St. The ACHD Commission had removed any and all local streets from being shown in the Master Street Map (MSM) in February 2016. The developers with interest on the south side of Fairview Ave. have expressed desires to provide connectivity for pedestrians and bicyclists through their properties and a willingness to work with the City of Boise and ACHD to achieve that goal. After these meetings, ACHD discussions with the technical team resulted in the removal of the local streets south of Fairview Ave. between 27th St. and 23rd St. from further consideration in the Plan. Connections and alignments of potential local streets moving forward in the Plan are shown in **Figure 30**.

Figure 30. Updated Local Streets included in the Plan



Cross Section

The public preferred Option C for the east-west local streets/alleyways, which included two-10-foot lanes with bike lanes, curb and gutter, and sidewalk, followed by Option A, which has two-10-foot lanes, the minimum needed to meet ACHD's alleyway policy. Option C has the largest footprint and will allow more flexibility to include additional street features, such as bike lanes and sidewalks, in the future. The wider cross section may inhibit some redevelopment and the technical team selected Option A, shown in Figure 17, which has the narrowest width, for adoption in the Plan. Additional width and features may be provided with coordination of other property owners along the same segment. This will allow developers to plan for and provide the appropriate local street features.

Improvement Plan

The Fairview Ave. and Main St. Improvements and Local Streets Plan has been developed through conceptual and operational analyses, stakeholder and public involvement, interaction, and feedback, and the technical team’s direction and decisions. The recommended improvements to Fairview Ave. and Main St. do not include updates to existing curb, gutter, and sidewalk and assume no right-of-way will be necessary to implement. Streetscape improvements to provide new sidewalks, planters, and other features outside of the travel, bike, and parking lanes will be directed by the City of Boise through redevelopment in alignment with the City of Boise’s streetscape requirements. Specific improvement to intersections based on the operational analysis are also not included in the Plan but should be investigated and incorporated into appropriate investigation, design, and construction as determined through ACHD’s project development process.

Fairview Ave. and Main St. Lane Reconfiguration Plan

Fairview Ave. will be reconfigured between 16th St. and Whitewater Park Blvd. to provide three vehicle travel lanes, on-street parking on both sides of the street, and a protected bicycle lane on the south side of the street following (Option C).



Main St. will be reconfigured between 16th St. and Whitewater Park Blvd. to provide three vehicle travel lanes, on-street parking on the south side of the street, and a protected bike lane on the north side of the street (Option B).



* Method of bike lane protection is flexible and will be determined with detailed design

** See City of Boise streetscape requirements

Adjustments to the conceptual sections shown will be necessary at the tie-in points at each end of the one-way couplet in the Plan area and at the signalized intersections. Detailed capacity and operational analyses should be completed to support the intersection improvements identified in this Plan, turn lane development and storage length, and signal timing adjustments along each arterial corridor. Design of the reconfiguration, including transitions, on-street parking layout, turn lane development, and bike lane protection should be completed before installation. Design will include proposed pavement markings, signing, and traffic signal head adjustments and/or replacements.

Bike Lane Improvement Plan

Bike lanes along Fairview Ave. and Main St. between 16th St. and Whitewater Park Blvd. should be designed and installed following the selected lane reconfiguration options for each arterial. The bike lanes and cycle tracks for both arterials between Whitewater Park Blvd. and Garden St. should be designed and installed following the cycle track concept shown in **Figure 14** and below. An immediate connectivity improvement is to provide an ADA compliant bicycle ramp from the existing bike lane on Main St. to access the Greenbelt path on the east side of the Boise River. Design for the cycle tracks will include determining the length of the two-way cycle tracks, proposed pavement markings, signing, and a determination of appropriate protection in the buffer area (channelizer posts, concrete barrier, planters, etc.). The Fairview Ave. cycle track design should be coordinated with the City of Boise to provide new needed connections from the Greenbelt on each side of the Boise River.



* Method of bike lane protection is flexible and will be determined with detailed design

** See City of Boise streetscape requirements

Local Street Connections

Fletcher St. Connection

The potential Fletcher St. connection between Whitewater Park Blvd. and 27th St. should be designed during redevelopment and be reflective of the technical team's discussion of options for modifying or restricting the street to reduce the estimated traffic volume diversion in the travel demand forecasts.

Other Local Streets

Location

Any local street and/or alleyway to be designed and constructed within the Plan area will not be built by ACHD but will be the responsibility of the developer. Specific locations, materials and textures will be identified through the redevelopment process in partnership with the City of Boise and ACHD. Any changes to existing streets and addition of new local streets shall have a positive effect on mobility and economic development, meeting the objectives of this Plan. These local streets and alleyways north of Fairview Ave. should be low speed and travel lanes could be designated as shared lanes for both bicyclists and motorists.

Cross Section

Individuals and businesses interested in developing or redeveloping land within the Plan area should work with the City of Boise and ACHD to provide streets and alleyways that meet the concepts and requirements presented in the Plan and each agency's standards. Specifically, any extension of 26th St., 29th St., or Fletcher St. should provide the right-of-way width and general street features shown in the Town Center Local street section shown in **Figure 16**. Adjustments to this section and the associated features may be made in cooperation with ACHD and the City of Boise as modified through their development processes. This includes specifying and using unique materials and textures as appropriate and agreed upon through the development process.

Any redevelopment abutting the existing east-west alleyways as shown in **Figures 15 and 18** should provide the 20-foot right-of-way width and features shown in the Option A street section in **Figure 17**. The materials and textures used for the street/alleyway need to include pavement materials similar to those shown in the example in **Figure 18** to differentiate them from the local streets and arterials they will connect to and contribute to the mix of modes and unique identity of the mixed-use developments they serve.

Transit Coordination

All of the proposed improvements on Fairview Ave. and Main St. in the Plan should be designed and implemented to accommodate existing and future transit service. The existing bus stops should be maintained with no on-street parking upstream and downstream of the stops per VRT's standards. VRT's long range plan includes increasing frequency between buses on existing routes and adding new service that will use the Fairview Ave. and Main St. one-way

couplet. The proposed cycle tracks and bike lanes should be designed to function properly with existing and proposed transit stops.

Plan Implementation

This Plan serves as a blueprint for ACHD and the City of Boise to work together to support redevelopment of the Fairview Ave. and Main St. area and provide accessible, vibrant, and walkable, people-oriented, mixed-use neighborhoods. ACHD will incorporate the recommended improvements to Fairview Ave., Main St., and the adjacent street, pedestrian, and bicycle facilities into specific capital and/or maintenance projects as funding allows. The City of Boise and ACHD will work with the development community to provide needed local street connections through redevelopment, working together through their development processes.

Estimated Costs, Funding, and Timing

A conceptual cost estimate for the Fairview Ave. and Main St. lane reconfigurations between 16th St. and Whitewater Park Blvd. is presented in **Table 7**. A separate conceptual cost estimate to install the proposed cycle tracks on both arterials between Whitewater Park Blvd. and Garden St. is presented in **Table 8**. The cost estimates are based on 2016 prices and details are presented in **Appendix I**.

The assumption that may have the largest impact to the cost estimates is the protected bike lanes have channelizing posts placed in the buffer area rather than concrete barriers or other methods of protection. If barriers are used, the cost estimates will increase. ACHD should plan to design the Fairview Ave. and Main St. lane reconfiguration as described as soon as practical. The cycle track improvements can be installed at any time but will be best served when the recommended connections and improvements to existing connections to the Greenbelt are implemented.

These estimates assume the improvements will be incorporated into specific maintenance projects that can receive funding for implementation and will not be stand-alone projects. There are no impediments to moving forward with implementation immediately, following ACHD's normal project development processes. Improvements to substandard pedestrian ramps may also be incorporated into the planned improvements. Streetscape improvements will not be included in these proposed projects but can be provided through redevelopment and other project activities.

Every year ACHD performs a detailed review of potential projects known as scoping. During the process the scoping team makes recommendations for the type of facility that best fits the situation. The team also develops a cost estimate to be used for programming the project into ACHD's Five Year Work Plan.

Table 7. Lane Reconfiguration Conceptual Costs for Fairview Ave. and Main St. between 16th St. and Whitewater Park Blvd.

Item	Cost
Construction Traffic Control	\$5,000
Pavement Markings (Paint)	\$19,000
Pavement Markings (Thermoplastic)	\$45,000
Channelizers (White)	\$10,000
Roadside Traffic Sign Installation	\$6,000
Furnish Roadside Sign Face	\$3,000
Adjust Signal Heads & Signs	\$7,000
Design	\$14,000
SUBTOTAL	\$109,000
Contingency	\$17,000
TOTAL	\$126,000

Table 8. Cycle Track Conceptual Costs for Fairview Ave. and Main St. west of Whitewater Park Blvd.

Item	Cost
Construction Traffic Control	\$1,000
Pavement Markings (Paint)	\$3,000
Pavement Markings (Thermoplastic)	\$1,000
Channelizers (White)	\$4,000
Roadside Traffic Sign Installation	\$1,000
Furnish Roadside Sign Face	\$1,000
Design	\$4,000
SUBTOTAL	\$15,000
Contingency	\$2,000
TOTAL	\$17,000



Projects such as new pavement markings, signage, and some ADA improvements do not require the scoping process described above and therefore may be completed sooner. It is ACHD's intent to integrate these relatively simple projects into normal business practices for completion. For example, if Fairview Ave. or Main St. is scheduled for chip-sealing or resurfacing, the proposed improvements could be implemented with the maintenance project. If no maintenance projects are scheduled in the short term, then the improvements should be implemented with ACHD's Five Year Work Plan and budget updates.

When implemented, the Fairview Ave. and Main St. Improvements and Local Streets Plan will promote walkable, people oriented, mixed-use neighborhoods through development, enhance mobility for motorists, pedestrians, and bicyclists, and enhance the local street network.

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