Priority Corridor AA – Phase 1
RTAC Subgroup
Meeting #5
September 15, 2009
8:00 – 11:00 AM
Community Planning Association
800 S. Industry Way, Suite 100
Meridian, ID

Agenda

1. Finalize objective weighting * (pp. 2-4) 8:00

2. Traffic assessment and findings * (pp. 5-21) 8:20

3. Technical matrix – Findings * (pp. 22-25) 9:00
    a. ROW Needs (pp. 26-30)
    b. Technical Memo re Objective 3.2 (pp. 31-34)
    c. Technical Memo re Goal 4 (pp. 35-38)

4. Next meeting agenda/expectations 10:50

T:\FY09\600 Projects\631 TVHCTS\Strategic Plan\RTAC subgroup\sep15 workshop\0 Agenda Meeting #5.doc

* Attachments

AVERAGE WEIGHTING BY OBJECTIVE

Weight			
Goals / Design Concepts	**Measure**		
		8-25-2009 Average	9-15-2009 Average
GOAL 1: IMPROVE TRANSIT CONNECTIVITY			
Objective 1.1 Connect major city central business districts (CBDs)	Number of major city CBDs with direct HCT connection	2.0	2.2
Objective 1.2 Connect residential areas with major employment centers	Number of major employment centers served with HCT	2.6	2.5
Objective 1.3 Connect residential areas with major activity centers	Number of major activity centers served with alignment	2.4	2.3
GOAL 2: IMPROVE TRANSIT MOBILITY			
Objective 2.1 Provide dedicated transit right-of-way where possible	Width and use of existing right-of-way	2.4	2.3
Objective 2.2 Provide good transit transfer opportunities with planned future bus system	Number of locations where the HCT alignment would connect with one bus route	1.3	1.2
	Number of locations where the HCT alignment would connect with two or more bus routes		
Objective 2.3 Minimize transit travel time between major origins/destinations	2035 transit travel times along HCT alignments	2.8	2.5

AVERAGE WEIGHTING BY OBJECTIVE

Weight			
Goals / Design Concepts	**Measure**		
		8-25-2009 Average	9-15-2009 Average
GOAL 3: MANAGE TRAVEL DEMAND			
Objective 3.1 Improve transit mode share	Number of daily 2035 transit trips in the study corridor		
	Daily boarding rides on HCT mode	2.2	2.3
Objective 3.2 Provide service with good access for walk and bike	Existing and forecast year population and population density within 1/2 mile of alignment	2.1	2.1
	Existing and forecast year employment and employment density within 1/2 mile of alignment		
	Qualitative Assessment of opportunities for and quality of - walk and bike access		
Objective 3.3 Provide potential park-and-ride sites with good auto access	Ability to site major park-and-ride facilities	2.2	2.0
Objective 3.5 Minimize impacts to traffic operations	Potential impact of HCT concept on major signalized intersections	1.9	2.1
	2030 V/C ratios along the potential		
GOAL 4: SUPPORT TRANSPORTATION AND LAND USE PLANS			
Objective 4.1 Provide transit improvements that are consistent with adopted local, state, and regional plans	HCT improvements identified in local, state, and regional plans	2.0	2.2
Objective 4.3 Provide opportunities for transit-oriented development	Transit-supportive policies and zoning are in place	1.6	1.7
GOAL 5: FINANCIAL FEASIBILITY			
Objective 5.1 Develop high-capacity transit concepts that have the potential to be funded using a mix of federal, state, and local funds	Order-of-magnitude capital cost	2.1	2.2
	Estimated operations and maintenance cost		
Objective 5.2 Develop cost-effective high-capacity transit concepts	Annualized capital cost per HCT rider	1.6	1.8
	Operating cost per HCT rider		

COMMENTS AND WEIGHTING

Weight

Goals / Design Concepts	Measure				Boise			VRT			Meridian			ACHD			ITD			NHD		
		Average	Variance (lower = less)	Change from 8-25 Version	Weight	Fatal Flaw	Drop, Amend or Issues	Weight	Fatal Flaw	Drop, Amend or Issues	Weight	Fatal Flaw	Drop, Amend or Issues	Weight	Fatal Flaw	Drop, Amend or Issues	Weight	Fatal Flaw	Drop, Amend or Issues	Weight	Fatal Flaw	Drop, Amend or Issues
Average of Weights (Theoretical Average = 2.0)					2.25			2.14			1.82			2.05			2.14			2.05		
GOAL 1: IMPROVE TRANSIT CONNECTIVITY																						
Objective 1.1 Connect major city central business districts (CBDs)	Number of major city CBDs with direct HCT connection	2.2	0.81	0.17	3			3			1		X	1			3			2		
Objective 1.2 Connect residential areas with major employment centers	Number of major employment centers served with HCT	2.5	0.25	-0.10	3		X	2		X	3		Amend	3			2			2		
Objective 1.3 Connect residential areas with major activity centers	Number of major activity centers served with alignment	2.3	0.22	-0.07	3		X	2		X	2			2			3			2		
GOAL 2: IMPROVE TRANSIT MOBILITY																						
Objective 2.1 Provide dedicated transit right-of-way where possible	Width and use of existing right-of-way	2.3	0.22	-0.07	3			3			2			2			2	Yes		2		
Objective 2.2 Provide good transit transfer opportunities with planned future bus system	Number of locations where the HCT alignment would connect with one bus route	1.2	0.14	-0.03	2			1		X	1			1			1	Yes	X	1		
	Number of locations where the HCT alignment would connect with two or more bus routes	1.3	0.56	-0.07	3			1		X	1			1			1		X	1		
Objective 2.3 Minimize transit travel time between major origins/destinations	2035 transit travel times along HCT alignments	2.5	0.58	-0.30	2			3			3	Yes		3			3			1		
GOAL 3: MANAGE TRAVEL DEMAND							X															
Objective 3.1 Improve transit mode share	Number of daily 2035 transit trips in the study corridor	2.3	0.56	0.13	2		X	2			3			1			3			3		
Objective 3.2 Provide service with good access for walk, bike, and bus transfer	Existing and forecast year population and population density within 1/2 mile of alignment	2.3	0.22	-0.07	2			3			2			3			2			2		
	Existing and forecast year employment and employment density within 1/2 mile of alignment	2.2	0.47	-0.23	2			3			2			2			3			1		
	Number of existing connecting bus routes and number of daily connecting buses	1.7	0.56	0.07	3			1		X	1			1			2			2		
Objective 3.3 Provide potential park-and-ride sites with good auto access	Ability to site major park-and-ride facilities	2.0	0.33	-0.20	2			3			2			2			2			1		
~~**Objective 3.4** Support other non-SOV travel modes~~	~~Compatibility of HCT concept with bicycle, pedestrian and carpool facilities~~	0.8	0.89	0.03			Drop	1		X			Drop				3			1		
Objective 3.5 Minimize impacts to traffic operations	Potential impact of HCT concept on major signalized intersections	2.2	0.81	0.17	1		X	2			1		X	3	Yes		3			3	Y	
	2030 V/C ratios along the potential alignment	2.0	0.67	0.20	1			2			1			3	Yes		2			3	Y	
GOAL 4: SUPPORT TRANSPORTATION AND LAND USE PLANS																						
Objective 4.1 Provide transit improvements that are consistent with adopted local, state, and regional plans	HCT improvements identified in local, state, and regional plans	2.2	0.81	0.17	2			1		X	3			3			1			3	Y	
~~**Objective 4.2** Provide transit service improvements to high growth areas~~	~~Actual and projected percent growth (2008-2035) in population and employment within 1/2 mile of HCT alignment~~	1.2	0.69	-0.03			Drop	3		X			Drop	2			1			1		
Objective 4.3 Provide opportunities for transit-oriented development	Transit-supportive policies and zoning are in place	1.7	0.40	0.07	3			1		X			Drop	2			2			2		
GOAL 5: FINANCIAL FEASIBILITY																						
Objective 5.1 Develop high-capacity transit concepts that have the potential to be funded using a mix of federal, state, and local	Order-of-magnitude capital cost	2.2	0.81	0.17	1			3			1			2			3			3		
	Estimated operations and maintenance cost	2.3	0.56	0.13	1			3			2			2			3			3		
Objective 5.2 Develop cost-effective high-capacity transit concepts	Annualized capital cost per HCT	1.8	0.56	0.23	3		X	2					Drop	2			1			3		
	Operating cost per HCT rider	1.8	0.56	0.23	3			2					Drop	2			1			3		

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MEMORANDUM

Date: September 8, 2009 Project #: 10126

To: John Cullerton, URS

From: John Ringert P.E., Eric Lindstrom, P.E., and Brett Boncore
Project: Treasure Valley High Capacity Transit Study
Subject: Preliminary Traffic Issues Assessment

Introduction

This memorandum summarizes the findings of the traffic evaluation for the corridors being considered for the Treasure Valley High Capacity Transit Study – Phase 1. The scope of the traffic evaluation included the following:

- Existing traffic context of each corridor
- Planned projects and projected future traffic conditions
- Potential traffic issues related to implementing high capacity transit (HCT) on each corridor

Corridor Overview

The HCT corridor starts in downtown Boise and heads west as it runs through the city of Meridian, downtown Nampa and to downtown Caldwell where the corridor terminates. While the corridor for the alignment has generally been identified to parallel Interstate 84 (I-84), five potential alignments are being considered which include:

- Arterials
  - Fairview Avenue/Cherry Lane
  - Franklin Road
  - Overland Road
- Boise Cutoff Railroad
- I-84/I-184

Figure 1 shows each of these potential alignments as well as the study corridor area that was initially considered as part of identifying the five alignments.

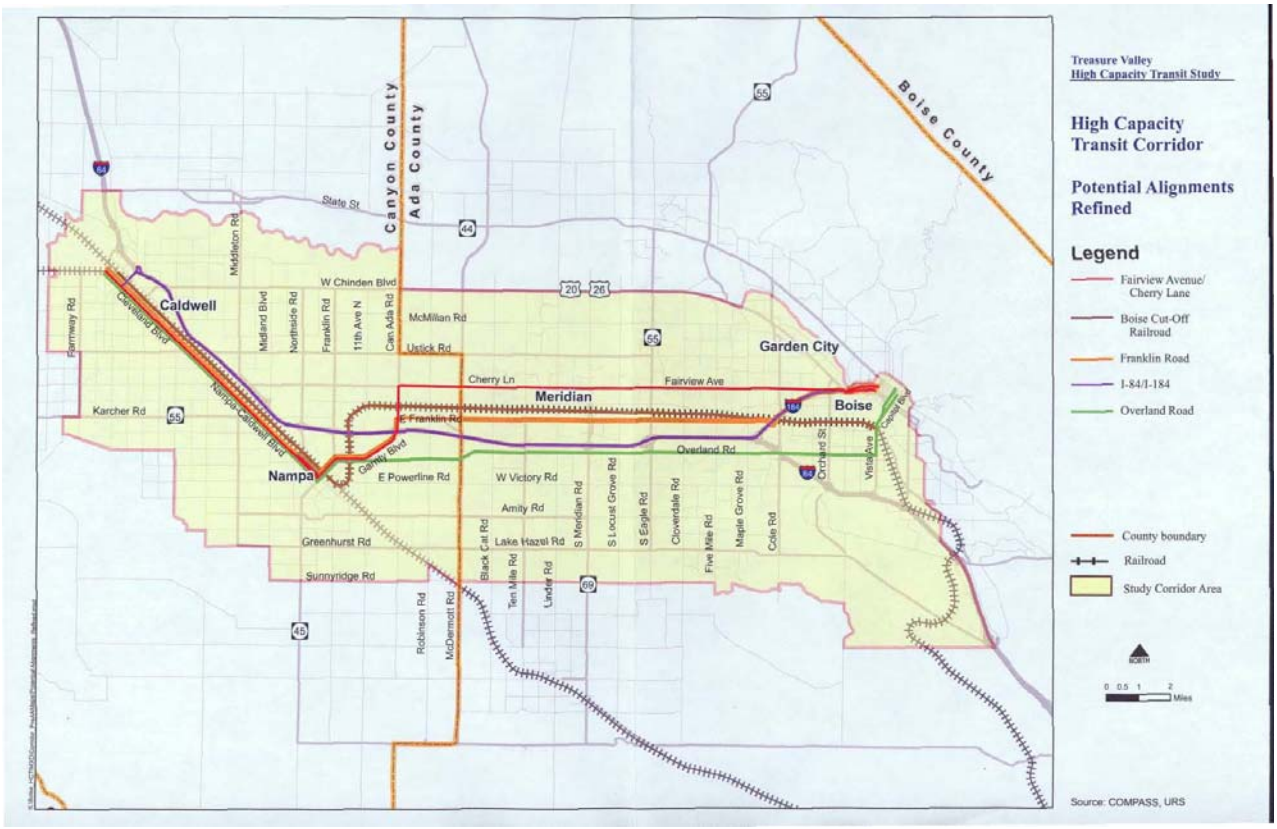
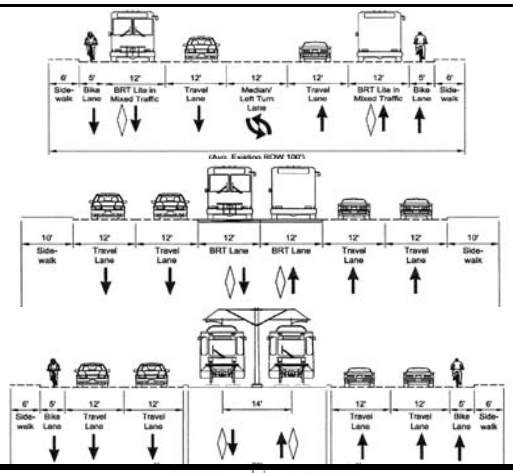
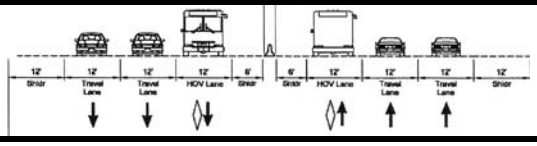
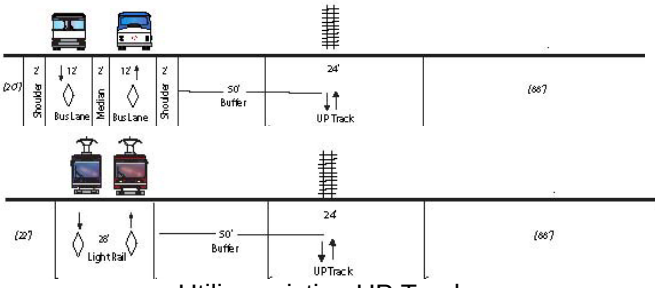


Figure 1- Five Alternative HCT Alignment

As shown in Figure 1, there are three fundamental categories of alignments. The first category is alignments along existing Principal Arterials. The second category is sharing right-of-way along the Boise Cutoff railroad. The final category is within the I-84 right-of-way. All of the arterial alignments would utilize Nampa-Caldwell Boulevard between downtown Nampa and Caldwell.

For each alignment, multiple transit modes were considered. The two modes that are common among all the categories (except I-84) are bus rapid transit in exclusive lanes (BRT) and light rail transit (LRT). Table 1 shows the modes considered for each alignment category.

Table 1 Potential Modes Being Considered

Alignment Category	Modes Being Considered	Example Cross-Section
Arterials	**Bus Rapid Transit Mixed Traffic:** Bus using existing traffic lanes, priority treatments at congested Intersections, and stations every ¼ to ½ mile **Bus Rapid Transit Exclusive Lane:** Bus using exclusive lanes, priority treatments at congested Intersections, and stations every ½ to 1 mile **Light Rail:** LRT using exclusive transit guideway, priority treatments at congested Intersections, and stations every ½ to 1 mile	
I-84	**Express Bus:** High-speed bus service operating in mixed traffic utilizing stops on freeway ramps.	
Boise Cut-Off	**Bus Rapid Transit Exclusive Lane:** Bus using an exclusive guideway, priority at intersections, and stations every ½ to 1 mile **Light Rail:** LRT using exclusive transit guideway, priority at major intersections, and stations every ½ to 1 mile **Commuter Rail**: Peak hour commuter rail service with priority at intersections and stations every 1 mile.	 Utilize existing UP Track

Arterial Alignments

Each of the arterial alignments was reviewed to identify potential traffic issues associated with the potential modes of travel. This review focused on the impacts to automobile traffic along each of the alignments due to the proposed transit modes. The initial analysis assumes that the HCT improvement options would be in addition to the existing or planned number of lanes. This traffic review also addresses potential traffic issues resulting from taking away travel lanes in order to accommodate the HCT.

EXISTING AND FUTURE TRAFFIC CONTEXT

For each potential corridor, traffic data was obtained. This data included existing and 2030 average daily traffic (ADT), existing and future roadway size, and density of access. The existing and future corridor characteristics are shown in Table 2.

Table 2 Arterial Alignments Characteristics

Roadway Section	Existing ADT	2030 ADT	Existing Lanes	Proposed Lanes	No. of Signals	Length of Section (miles)	Access Density (per mile)
Fairview Avenue Alignment							
Main: 16th to Orchard	13,000	29,000	4 one-way	same	4	1.75	29
Fairview: Orchard to Meridian	20,000-32,000	46,000-52,000	5	7	20	7.5	35
Cherry: Meridian to Can Ada	6,000-20,000	30,000-33,000	5	7	3	6	17
Can Ada: Cherry to I-84	6,000	24,000	2 to 4	same	3	1.4	18
Garrity: I-84 to Kings	24,000	39,500	5	7	6	1.25	42
Total	**21,500**	**41,000**	**2 to 5**	**5 to 7**	**36**	**19.4**	**27**
Overland Road Alignment							
9th St: Idaho to University	16,500	27,000	4 one-way	same	6	0.86	26
Capitol Blvd: Idaho to Federal	21,000-29,400	25,000-55,000	4 one-way	same	6	1.16	22
Vista: Federal to Overland	22,500	33,000	5	same	5	1	56
Overland Rd: Vista to Meridian	17,200-30,500	34,000-51,000	5	5 to 7	20	9.0	29
Airport Rd: McDermott to Hpy Vly	3,000	13,500	2	5	0	2	27
Total	**17,800**	**37,000**	**2 to 5**	**5 to 7**	**38**	**17.0**	**27**
Franklin Road Alignment							
I-184: Main/Fairview to Franklin	31,000	49,000	6	same	Interchg	3.5	None
Franklin Road	14,000-27,000	31,000-50,000	2 to 5	5 to 7	15	14.2	19
Total	**20,800**	**40,100**	**2 to 5**	**5 to 7**	**15**	**17.8**	**17**
Nampa-Caldwell Route for All Three Alignments							
Garrity/11th Ave:	24,000	39,000	4 to 5	7	7	1.75	33
2nd/3rd: 11th to Nampa-Caldwell	12,900	20,000-21,000	3 one-way	same	1/1	1	46
Nampa-Caldwell Blvd	23,000-26,000	34,000-37,000	5	same	5	5.7	33
Blaine & Cleveland	14,000	10,000	2 one-way	same	¾	2	40
Total	**19,000**	**25,800**	**2 to 5**	**5 to 7**	**21**	**13.5**	**37**

As shown in Table 2, the three arterial corridors are all projected to have 2030 traffic demands of 40,000-50,000 ADT in some sections. Access densities and the number of existing traffic signals were similar between Overland Road and Fairview Avenue while Franklin Road had a lower access density and number of traffic signals.

Future improvements along each of the corridors include widening to seven lanes in some sections to accommodate future traffic demands. Fairview Avenue is currently being studied for future widening to seven lanes through west Boise and Meridian. Overland Road is identified for right-of-way preservation for seven lanes from Cole Road to Meridian Road. Franklin Road is also identified for seven lanes between Cole Road and Eagle Road.

POTENTIAL ISSUES

For each alignment the existing traffic context, future growth and planned improvements, and potential issues were evaluated. The potential traffic issues were separated into three primary groups which are described below:

- Capacity and access constraints
- Major intersection and interchange constraints
- Station location issues

Table 3 identifies the key locations which were identified to have capacity, access, and intersection operational issues along each corridor. The review of station locations is included later in this memorandum.

Table 3 Arterial Alignment Issues

Alignment Category	Traffic Capacity/Access Management Constraints	Major Intersection or Interchange Constraints
Fairview/Cherry Lane	Orchard Road – Meridian Road	Cole Road
	I-84 to Nampa-Caldwell Blvd	Eagle Road (future CFI possible)
		Meridian Road/Main Street
		Garrity Blvd Interchange
Franklin Road	Milwaukie Street to Eagle Road	I-184 Connector on structure
	I-84 to Nampa-Caldwell Blvd	Curtis interchange
		Franklin Road/I-184 interchange
		Milwaukie Street
		Eagle Road
		Meridian Road/Main Street
		Future SH 16 (McDermott) interchange
		Garrity Blvd Interchange
Overland Road	Vista Road to Eagle Road	Cole Road Interchange
		Eagle Road
		Meridian Road
Nampa-Caldwell Blvd.	Kings Road to Simplot Blvd.	2nd/3rd Street Couplet
		Nampa Blvd.
		Midland Blvd.

The Fairview Avenue and Overland Road alignments have very similar issues with respect to traffic capacity and access. Both have significant sections with high driveway density which makes any type of dedicated transit lane difficult to install because of the need to restrict the accesses with a median and in some cases remove the accesses.

The Fairview Avenue/Cherry Lane alignment contains a very high density of driveways and access points. Generally, this alignment is characterized by very high existing traffic volumes that

will continue to grow based on the 2030 COMPASS forecasts. The most constrained large intersections along this corridor are the Cole Road, Eagle Road, and the Meridian Road/Main Street intersections. At the Eagle Road/Fairview Avenue intersection, a study by COMPASS showed a possible continuous flow intersection (CFI) although the improvement recommendation has not been adopted into the regional transportation plan. At Cole Road, the right-of-way is constrained by existing commercial buildings. The I-84 interchange at Garrity Boulevard may also present some challenges when trying to place a transit line on this alignment.

The Overland Road alignment is characterized by very high existing volumes and future projections in the southwest Boise sections. The most constrained intersections have been identified as the Cole Road, Eagle Road and Meridian Road intersections. The Cole Road interchange with I-84 may be a significant constraint to future expansion since it is on a bridge structure.

The Franklin Road alignment has fewer driveways and local street connections but has more potential issues at major intersections. The four large constrained intersections on this alignment have been identified at Milwaukee Street, Eagle Road, and Meridian Road.

The Nampa-Caldwell Boulevard alignment is common to all of the arterial alignments and can be characterized as having a large amount of access driveways and local connections. Figure 2 shows a picture along the boulevard. Generally, most of this roadway is under capacity but future COMPASS ADT projections indicate that some sections of the alignment may approach capacity by 2030. This alignment is also designated as the I-84 business route which will need to be considered if major transit improvements are proposed.

Figure 2- Nampa-Caldwell Blvd. I-84 Business Route

Based on the evaluation of the arterials, LRT or BRT in exclusive lanes are likely to present challenges on the arterial corridors for the following reasons:

- The transit lanes would reduce much-needed capacity if existing or future automobile travel lanes were removed. Addition of transit lanes would result in some nine-lane sections in the future since all three arterials have sections planned for widening to seven lanes.

- Driveways and minor streets accesses are frequent and there is limited ability to provide alternative access and circulation options. Left urns (with median LRT/BRT) present the biggest problem since they would have to be accommodated as U-turns at signalized intersections.

- A number of major intersections and interchanges would need to be widened and modified.

POTENTIAL PRIORITY TREATMENTS

The challenge for transit on these arterial corridors is to maintain reasonable and reliable travel times. Because all of the corridors are near capacity today and are projected to remain near capacity in the future, high delays at major intersections and low speeds between intersections can be expected. In addition, as traffic demand approaches capacity during the peak hours, travel time reliability will likely be lower due to the congested conditions. For all three potential transit modes, the following priority treatments should be considered:

- Transit signal priority at signalized intersections
- Queue-jump or bypass lanes at intersections where an exclusive bus lane is not proposed

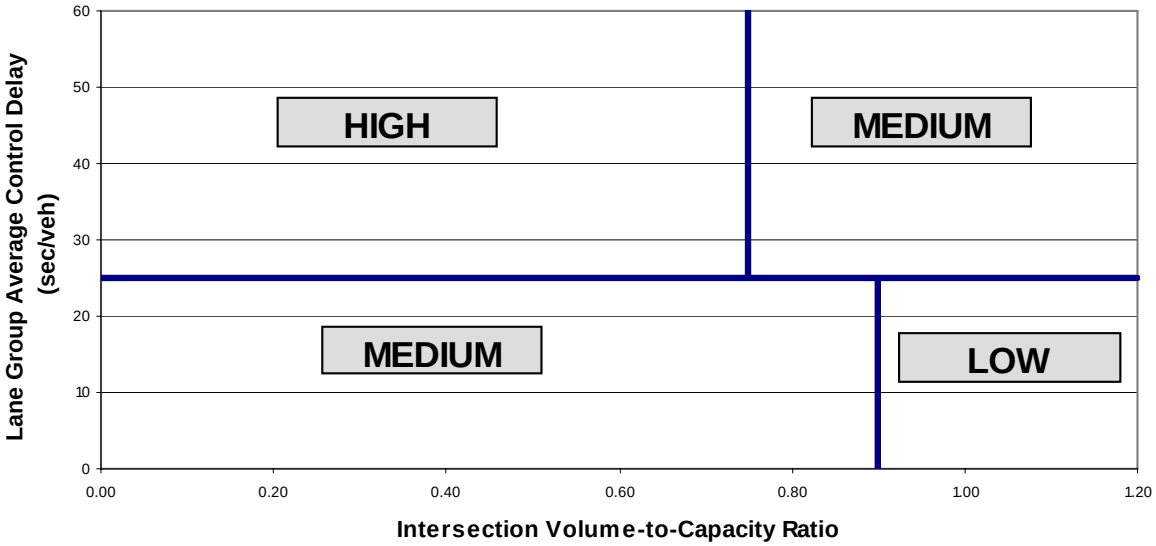
Transit Signal Priority

Transit signal priority (TSP) is a signal operation strategy in which a transit vehicle is given preferential treatment while maintaining the standard signal operation at the intersection. This is usually accomplished by providing an extension of the green indication for a transit vehicle that is approaching the intersection near the end of the green phase or a red truncation which provides a green indication to the transit movement prior to what would occur under normal operations. Transit signal priority typically operates within the background signal cycle and therefore does not cause noticeable changes to most drivers as compared to emergency vehicle pre-emption. There are a few different technologies available for TSP that would work within the existing signal system.

While transit signal priority can be implemented at almost any signalized intersection, it is not equally effective at all intersections. As an intersection reaches capacity, the ability to take green time from one movement and give it to the transit movement is reduced. A matrix was developed to allow the potential of each intersection to be ranked as high, medium or low potential based upon the levels of capacity and delay observed. This matrix is shown in Figure 3 below.

The matrix identifies that an intersection that experiences a v/c ratio below 0.75 and delays to the TSP movements in excess of 25 seconds has a high potential to realize benefits following the implementation of TSP. If an intersection experiences v/c ratios in excess of 0.90 and delays to the TSP movements less than 25 seconds, the potential for realization of benefits with the implementation of TSP is considered low. All other cases are ranked medium.

Figure 3
TSP Opportunity Matrix



The importance of this matrix is that the key large intersections along the three potential corridors operate at high volume/capacity ratios with moderate delay to through traffic movements and therefore transit signal priority will likely result in medium or low signal priority benefits at those intersections. Transit signal priority would likely be beneficial at the minor traffic signals along the corridors. Typically, transit signal priority results in a 5-25% transit travel time reduction and significantly improves transit reliability. These factors can increase the public's perception of the transit system and, in many cases, increase ridership.

Queue By-Pass/Jump Lanes

Figure 4. Queue Jump Lane in Portland, Oregon

Long traffic queues at the major signalized intersections are common along all three alignments. Use of transit queue bypass lanes may be necessary for the larger intersections to reduce delay and improve travel time reliability for the BRT Mixed Traffic option. There are a number of different designs for by-pass lanes. The most common is using a right-turn lane and providing an early green indication for the transit vehicle to get back into traffic. An example of this is shown in the Figure 4. This type of treatment is low-cost and effective in locations in which the right-turn lane has relatively low usage and extends an adequate distance to allow transit vehicles to enter the lane without getting caught in the queued traffic.

ARTERIAL ALIGNMENTS SUMMARY

The mixed traffic BRT alternatives will be significantly impacted by traffic signals and congestion along the alignments. Due to the traffic signals along each alignment; reliability, on-time performance, and travel time will be affected and may cause the transit line to become ineffective. Exclusive transit lanes for BRT or LRT would significantly impact traffic on the corridor if the lanes are not added in addition to the existing and planned travel lanes. Even with the additional transit lanes, some additional intersection improvements would be necessary to accommodate the left-turns that currently occur at driveways and local streets.

Transit signal priority could be implemented, although the congested sections of each alignment that are approaching capacity would limit the effectiveness and travel time improvements. Queue-jump lanes should be considered if exclusive transit lanes for LRT or BRT are not installed.

If capacity on one of these alignments is reduced to provide for BRT or LRT, it is likely that one of the parallel roadways would need to be widened beyond what is currently planned. This would potentially provide an alternative for the excess traffic demand and maintain the overall combined capacity of the east-west arterial system.

Boise Cutoff Railroad Alignment

The Boise Cutoff alignment utilizes the existing railroad alignment between Boise and Nampa. On the Boise end of the cutoff, two routes options are being considered. The first option is to utilize the cutoff to the existing Boise Depot and utilize BRT, LRT, or a shuttle into downtown. This is the representative option of the Commuter alternative. The second option utilizes the Boise Branch railroad line for a short distance to access the Main Street/Fairview Avenue couplet. This option is the representative for the BRT and LRT alternatives.

The Boise Cutoff alignment between Nampa and Caldwell also has two options. The first is to construct a new track adjacent to the existing UPRR mainline from the Boise Cutoff to Caldwell. This is the representative option for the Commuter Rail alternative. The second option is to utilize Nampa-Caldwell Boulevard. This is the representative option for the LRT and BRT alternatives.

For the LRT and BRT sections that would utilize the arterial roadways, a description and the issues associated with these options are discussed in the previous section. Within the existing cutoff railroad right-of-way, the alignment travels through a primarily residential/light commercial area with street crossing spacing of about 1,500 feet. After crossing under I-184, the railroad travels through a high traffic area around the Boise Town Center and public street intersection spacing begins to increase. As the alignment passes through downtown Meridian the right-of-way becomes narrower. From Meridian west, another potentially high-speed section could be implemented as the major roadway crossing spacing becomes 1 to 2 miles.

There are some unique characteristics that were observed along this alignment. Within the Boise and Meridian areas, most of the traffic impacts from the proposed alignment will be limited to the

crossings of the arterials, some of which are in close proximity to signalized intersections. Through downtown Nampa and most of downtown Caldwell, the railroad is grade separated as it turns into a wide rail yard. Along this section, most of the crossing roads travel across bridges over the rail yard. This is advantageous because this grade separation allows for less traffic conflicts and potentially another high-speed travel section.

Planned Improvements

Some improvements have been planned on the crossroads along this corridor. Most of these improvements are roadway widening. Five major arterial crossings in Ada County (Maple Grove Road, Five Mile Road, Ten Mile Road, Linder Road) are planned to be widened from two to five lanes. One arterial (Star Road) is expected to be widened from two to three lanes.

POTENTIAL ISSUES

For the sections utilizing the Boise Cutoff railroad right-of-way, the primary traffic issues with all the transit modes (commuter rail, LRT, and BRT) include crossings of high volume arterials, conflicts with intersections adjacent to the tracks, and potential sight distance issues at roadway crossings.

Impact to Cross Street Traffic

The current cutoff has very low usage and train speeds, so the there is minimal impact to cross-street traffic. If an alternative along the rail corridor were to have frequent headways of 30 minutes or less in each direction, the amount of disruption to traffic at high-volume crossings would significantly increase. The following arterials have been identified as potentially having high volume railroad crossings that could be impacted by frequent crossings:

- Cole Rd (ADT Ex: 26,000; 2030: 29,000)
- Meridian/Main (ADT Ex: 30,000; 2030: 40,000)
- Milwaukee St. (ADT Ex: 24,000; 2030: 29,000)
- Garrity Blvd. (ADT Ex: 24,000; 2030: 47,500)
- Five Mile Rd (ADT Ex: 23,000; 2030: 32,000)
- Middleton Rd (ADT Ex: 12,000; 2030: 30,000)
- Eagle Rd (ADT Ex: 54,000; 2030: 56,000)
- Ustick Road (ADT Ex: 8,000; 2030: 36,000)

As shown above, many of the key arterial roadways that are crossed by the alignment have 2030 traffic projections between 30,000 and 50,000 ADT. Assuming an interruption for a crossing every 15 minutes by a train in either direction, the disruptions would likely be noticeable although queuing problems are not expected to occur at most locations since the amount of time the crossings would be closed for the vehicle to pass would be small as compared with the stop time at some of the signals on these corridors. Figure 5 shows a picture of the vehicles on Eagle Road queuing as a freight train crosses the road.

Figure 5 - Existing rail crossing at Eagle Road. Stopped traffic on Eagle Road as a result of an eastbound freight train.

Eagle Road represents a unique challenge for trains crossing because of the traffic congestion that occurs during the peak commuter hours. While the crossing is not expected to create significant additional average vehicle delay over the period of an hour, the traffic already backs over the track from signals approximately ¼ mile away at Franklin Road and Pine Avenue. Because the distance to the signals is over the level that pre-emption with the traffic signals can address, there is a good chance a transit vehicle would approach the crossing with vehicles queued over the crossing. In order to mitigate this situation the following options could be considered:

- Provide a grade-separated transit crossing.
- Improve Eagle Road at Franklin Road and Pine Avenue to reduce the congestion in the vicinity of the railroad tracks.
- Provide a safety storage area in the median and on the shoulder to allow vehicles on the tracks to get off the tracks when a train is approaching. This is not a typical design option but might be applicable in this situation.

The situation of traffic congestion over the tracks from signals beyond signal pre-emption distance is rare but could occur on other roadway crossings as future traffic growth occurs. This would need to be studied in greater detail.

Conflicts with Adjacent Intersections

When LRT tracks are close to parallel arterial roadways, conflicts with the adjacent intersection often occur which require signal coordination and sometimes geometric improvements to the intersection. These adjacent intersections are typically located within a couple hundred feet of the tracks. When a crossing occurs, queues from the signal can extend across the transit tracks/guideway and vehicles stopped at the crossing can queue back into the intersection. This is mitigated through pre-emption of the signal. The primary impact to adjacent intersections along the corridors due to the train crossings are the north-south movements which must remain

stopped while the gates are down. Generally the train crossings will not affect the parallel arterial traffic movements

Some intersections have been identified as likely requiring improvements in order to run LRT, BRT, or commuter rail along the Boise Cutoff. Two example intersections are the Cole Road/Franklin Road intersection and Milwaukee Street/Franklin Road intersection. In order to minimize impacts and maintain safety, the signals would need to be pre-empted to clear queues from the tracks and to restrict movements progressing into the tracks at many of these locations.

An example intersection operational analysis was done using Highway Capacity Manual methodology to identify the potential impact of train crossings near major intersections. The intersection analyzed was the Cole Road/Franklin Road intersection (Figure 6) which is located approximately 50 feet south of the Boise Cut-off railroad crossing. Results showed that a 30% increase in average delay per hour could be incurred assuming headways of 15 minutes per direction (8 trains per hour) and a total gate time of approximately 45 seconds. While the overall intersection delay impacts can likely be accommodated at many of the intersections, in the example, the average southbound delay doubled due to the gates being down approximately 45 seconds. The most significant impact would likely be at the Milwaukee Street intersection during the holiday season because of the long southbound queues.

Figure 6 - Existing rail crossing at Cole Road. Southbound queue extends from Franklin Road over the tracks during the midday.

Potential Sight Distance Issues

Potential traffic safety issues were examined along this corridor and the most prominent of these were sight distance issues. The following road crossings were identified as having sight distance issues:

Milwaukee Street: Limited sight distance to the rail crossing may limit driver visibility of crossing signal activation.

11th Avenue (Nampa): Sight distance may be limited southbound and northbound on 11th Avenue. The view on the approach is obscured by foliage and grade.

POTENTIAL CROSSING IMPROVEMENTS

Traffic Signal Modifications

Considering the increased conflicts with adjacent intersections and impacts to cross street volumes described previously, advanced signal control and coordination would likely be necessary to keep a high level of service for many major cross streets and adjacent intersections including Curtis Road, Hartman Street, Alumbaugh Street, Cole Road, Milwaukee Street, and Eagle Road.

Crossing Signal Improvements

Due to the existing low number of trains on the cut-off, most of the major crossings do not have active gates. With an increase in train (or BRT) crossings, gates would likely be needed at a number of locations under the LRT or commuter rail transit option. Many street crossings may require crossing signal improvements (i.e. signals and/or gates) if a high frequency light rail/commuter rail line is run along the Boise Cut-off. These crossings include Milwaukee Street, Five Mile Road, Eagle Road, Linder Road, Ten Mile Road, Black Cat Road, Star Road, and 11th Avenue.

BOISE CUTOFF SUMMARY

The most significant issues along the Boise Cutoff alignment are the delay to cross street traffic and the proximity of the crossings to existing signals. As the region is projected to grow tremendously in the next twenty years, many of the traffic volumes observed along the cross streets will also grow and some will reach capacity. Since implementing LRT or BRT would increase crossing frequency, congestion on the cross streets would likely become worse. At the crossings, additional delay to the north-south movements during the crossings could be significant and would likely require some improvements, but the overall impact on the roadway corridors will be low with the possible exception of accommodating queues at the Franklin Road/Milwaukee Street signal and traversing the existing queues that cross the tracks at Eagle Road. It would likely require improvements to the signalized intersections in the vicinity of the crossings to accommodate queuing, installation of gates and other safety devices, and possible grade-separation may be needed at Eagle Road.

However, there are some traffic benefits in choosing this alignment. As opposed to the other alignments being studied, the Boise Cut-off includes the least amount of direct traffic conflicts. The alignment also does not affect the east-east capacity of the transportation system which is a significant benefit given all the arterials are projected to have over-capacity sections without widening to seven lanes. From a traffic operations standpoint, this alignment is preferable when considering the amount of existing traffic conflicts and safety concerns.

I-84/I-184 Alignment

The I-84/I-184 alignment would use buses in mixed freeway traffic with stops along freeway ramps. The alignment begins in downtown Boise at 15th Street and heads west on I-184 through four arterial interchanges (in ~2.5 miles) until it arrives at the I-84 interchange. The alignment continues west on I-84 through the Eagle Road interchange. Between I-184 and Eagle Road, I-84 varies from four to five lanes in each direction with limited excess right-of-way and no significant center median. From Eagle Road, the highway continues with four lanes in each direction to Meridian Road and then transitions to two lanes in each direction. The alignment continues west through a largely rural area until the Garrity Boulevard interchange where the highway enters into Nampa. The section between Meridian Road and Garrity Boulevard is currently being widened to three lanes in each direction. Table 4 shows the traffic characteristics along the corridor.

Table 4 I-84/I-184 Traffic Characteristics

Roadway Segment	Existing ADT	Projected Future ADT	Existing Lanes	Near-Term Future Lanes	Existing No. of Interchanges	Segment Length	Potential Issue
I-184							
Curtis to I-84	65,000	90,000	6	same	4 interchanges	2.5	• Significant port on structure. • Must cross 6 lanes of traffic to enter westbound highway at Chinden
I-84							
I-184 to Eagle	100,000	150,000	8	same	1 interchange	3.3	• Lack of median and retaining walls
Eagle to Meridian	76,000	150,000	8	same	1 interchange	2	• Weaving between interchanges and available space
Meridian to Garrity	74,000	150,000	4	6	1 interchange	6	• Available space and two new interchanges
Garrity to Franklin	72,000	120,000	4	6	1 interchange	2	• Large median for separated travel lane
Franklin to Karcher	55,000	120,000	4	6	2 interchanges	2.5	• Large median for separated travel lane
Karcher to Hwy 20/26	41,000	90,000	4	6	1 interchange	5.25	• Large median for separated travel lane
Hwy 20/26 to 10th Ave	30,000	74,000	4	6	1 interchange	1	• Large median for separated travel lane

There are a few unique characteristics along the I-84/I-184 alignment. The interchange spacing of 1-2 miles at the key arterials reduces the amount of interference with traffic on the arterial system although most of the interchanges are not designed to accommodate transit. Secondly, there is a wide variation of center median space and extra right-of-way along this alignment which will make it difficult to provide a separate travel way for BRT or LRT.

Planned Improvements

Most of the improvements that have been planned along this alignment include highway widening and interchange improvements. The section of I-84 from Meridian Road to 10th Avenue in Caldwell is planned to be widened from four to six lanes by 2010. Furthermore, in the long term, widening to 8 lanes is planned from Meridian through the Garrity interchange (COMPASS: CIM Regional Long-Range Transportation Plan 2030). Although most of the existing arterials that have an interchange with I-84 are not planned to be widened, the Ten Mile Interchange is being constructed and will open by 2011. In addition, a new interchange in the vicinity of McDermott Road is planned for the future extension of SH 16.

Future Traffic Projections

Based on 2030 projected volumes, eight lanes (four in each direction) will be needed to accommodate the automobile commuter traffic demand. Therefore, conversion of travel lanes for exclusive transit use would create additional traffic congestion and delay on corridor.

POTENTIAL ISSUES

The express bus alternative utilizing the I-84/I-184 alignment has very few potential traffic issues with the exception of the serving the stations on the freeway ramps. The primary issues of providing an express bus within a mixed-use traffic environment like I-84/I-184 are the conflicts with automobile movements that can be created. If the stations are located at every interchange, then the transit vehicle must stay in the outside travel lane which is typically the slowest lane. At the stations, buses will need to accelerate and decelerate on the ramps to serve the stations. They also may be caught in peak period congestion on the ramps as the bus waits to access the on-ramp which would add delay to the route. If the station is not located at the interchange, the transit vehicle must go through the interchange without conflicting with the on and off ramp movements. Finally, the new Ten-Mile Road interchange will be a single point urban interchange (SPUI) and therefore will not be designed to accommodate the east-west through movement between the ramps.

In order to minimize the conflicts and reduce the delay to transit vehicles, rebuilding of part or all of the interchanges may be required. This could range from minor modifications of the ramps to creating separate bus travel-ways at through the interchanges.

Impact to Cross Street Traffic

The following arterials have been identified as potentially having high volume interchanges that may limit the amount of changes that can occur to accommodate the BRT and LRT:

- Eagle Road
- Meridian Road

- Garrity Boulevard

At 10th Avenue, which is the terminating street of this alignment, some traffic conflicts may arise at the off-ramp intersections. In order for an exclusive lane transit line to operate smoothly at these intersections traffic signal improvements will be necessary.

I-84/I-184 SUMMARY

The most significant traffic issues associated with the I-84/I-184 alignment would be access to the stations on the ramps. Some of the interchange ramps will be congested during the peak hours and therefore the buses would be caught in the congestion while accessing the station as well as getting to the on-ramp from the off-ramps.

Stations

Three traffic related issues were identified when examining potential station locations. These three issues are park-and-ride access, pedestrian access, and proximity to major developments.

Transit station park-and-rides are major generators of new commuter trips. If park-and-rides are placed at select stations along one of the five alignments being evaluated, anywhere from 800 to 1,100 trips/day (according to ITE Trip Generation) could be generated from drivers who travel to park-n-ride lots by car or bus to ride the transit line to their place of work. With this in mind, car and bus circulation must be provided for at each of the stations. This may require additional right-of-way in order to secure the space needed for adequate and safe car and bus circulation around each station.

Another issue associated with station placement is pedestrian access. It will be important to provide easy and safe access to the stations for pedestrians. The largest issue that will have to be considered is the pedestrian crossing impacts to the roadways and intersections around the station. At in-street stops, modifications will have to be made to each pedestrian crossing near the transit station and new crosswalk placement may have to be considered. This is necessary because an increased amount of pedestrian crossings will occur with the placement of a major transit stop. In a similar way, a station that is placed across a roadway from a major pedestrian trip generator will typically increase pedestrian activity.

The last major issue associated with transit station placement is commercial development that is located near the stations. Pedestrian and automobile circulation becomes a major component of the overall land-use design of the station area and will need to be integrated into the development design. Illegal parking in adjacent developments can also become an issue if the development is very near the transit stop. Sufficient parking space should be provided near stations in locations that could be utilized for park-n-ride trips.

Summary

Each of the alignment alternatives could have potential impacts to traffic operations. This is primarily because the arterial and highway system is projected to be near capacity in the future even with the improvements planned by the roadway agencies. Therefore, capacity reduction could result in some negative traffic impacts.

There are unique benefits and impacts of the various alignment and mode options. All three arterial options have similar issues which include lack of right-of-way to add new exclusive transit lanes, lack of available capacity to utilize existing or planned lanes as exclusive transit lanes, accommodation of the existing local streets and private driveways, and potential impacts associated with the stations. Franklin Road has slightly fewer potential issues due to lower driveway and intersection densities as well as lower levels of existing development.

The Boise Cutoff alignment generally has the least impact on traffic capacity and operations. This is because the impact of the transit on this alignment is limited to the crossings of key arterials. At the crossings, additional delay to the north-south movements during the crossings will be significant and will likely require some improvements, but the overall impact on the roadway corridors will be low with the possible exception of accommodating queues at the Franklin Road/Milwaukee Street signal and traversing the existing queues that cross the railroad tracks at Eagle Road. The Boise Cutoff alignment would likely require improvements to the signalized intersections in the vicinity of the crossings to accommodate queuing, installation of gates and other safety devices, and possible grade-separation at Eagle Road.

The I-84/1-184 express bus alignment also has the potential to minimize impacts to traffic flow. The difficulty with accommodating transit on this alignment is that it would likely require modification of some interchanges in order to avoid traffic conflicts and high delays to transit vehicles.

Goals / Design Concepts	Measure	Boise Cutoff		
		Commuter Rail	Light Rail	BRT - Exclusive
GOAL 1: IMPROVE TRANSIT CONNECTIVITY				
Objective 1.1 Connect major city central business districts (CBDs)	Number of major city CBDs with direct HCT connection	Direct access to all four CBDs	Direct access to all four CBDs	Direct access to all four CBDs
Objective 1.2 Connect residential areas with major employment centers	Number of major employment centers served with HCT	Serves 5 designated employment centers	Serves 5 designated employment centers	Serves 5 designated employment centers
Objective 1.3 Connect residential areas with major activity centers	Number of major activity centers served with alignment	Serves 3 main activity centers (St. Luke's Boise, St. Luke's Meridian, Boise State University), and 11 commercial centers	Serves 3 main activity centers (St. Luke's Boise, St. Luke's Meridian, Boise State University), and 11 commercial centers	Serves 3 main activity centers (St. Luke's Boise, St. Luke's Meridian, Boise State University), and 11 commercial centers
GOAL 2: IMPROVE TRANSIT MOBILITY				
Objective 2.1 Provide dedicated transit right-of-way where possible	Width and use of existing right-of-way	No additional ROW required	35% of the alignment would require additional ROW.	35% of the alignment would require additional ROW.
Objective 2.2 Provide good transit transfer opportunities with planned future bus system	Number of locations where the HCT alignment would connect with one bus route	3	5	5
	Number of locations where the HCT alignment would connect with two or more bus routes	5	8	8
Objective 2.3 Minimize transit travel time between major origins/destinations	2035 transit travel times along HCT alignments (Caldwell to Boise Multi-Modal Center)	49 min	51 min	51 min
GOAL 3: MANAGE TRAVEL DEMAND				
Objective 3.1 Improve transit mode share	Estimate of daily 2035 ridership demand on HCT mode	22,000	26,500	26,500
Objective 3.2 Provide service with good access for walk and bike	Existing and forecast year population and population density within 1/2 mile of alignment	2008: 68,291 2008: 3.5 Pop/acre 2035: 98,749 2035: 5.1 Pop/acre	2008: 72,467 2008: 3.7 Pop/acre 2035: 104,033 2035: 5.3 Pop/acre	2008: 72,467 2008: 3.7 Pop/acre 2035: 104,033 2035: 5.3 Pop/acre
	Existing and forecast year employment and employment density within 1/2 mile of alignment	2008: 84,344 2008: 4.3 Jobs/acre 2035: 131,786 2035: 6.7 Jobs/acre	2008: 87,248 2008: 4.4 Jobs/acre 2035: 133,180 2035: 6.8 Jobs/acre	2008: 87,248 2008: 4.4 Jobs/acre 2035: 133,180 2035: 6.8 Jobs/acre
	Qualitative assessment of opportunities for and quality of walk and bike access	Meridian is considering a multi-use path adjacent to rail line. Very limited access to adjacent residential and employment areas.	Meridian is considering a multi-use path adjacent to rail line. Very limited access to adjacent residential and employment areas.	Meridian is considering a multi-use path adjacent to rail line. Very limited access to adjacent residential and employment areas.
Objective 3.3 Provide potential park-and-ride sites with good auto access	Ability to site major park-and-ride facilities	Vacant parcels available within or adjacent to rail right-of-way. Close to I-84 and readily accessible from the freeway. Would directly serve Boise Towne Square Mall, which could potentially accommodate a combined parking structure for P&R and the mall. Would directly serve College of Western Idaho and Idaho Center, both potential sites for large shared P&R lots.		
Objective 3.5 Minimize impacts to traffic operations	Potential impact of HCT concept on traffic operations and major signalized intersections	Crossing signal upgrades would be needed at several locations. Potential for some delay to cross-street traffic. Coordinated signals may be required at some Franklin Road intersections to avoid traffic queuing over tracks. Grade separation may be needed at Eagle Road.	Crossing signal upgrades would be needed at several locations. Potential for some delay to cross-street traffic. Coordinated signals may be required at some Franklin Road intersections to avoid traffic queuing over tracks. Grade separation may be needed at Eagle Road.	Crossing signal upgrades would be needed at several locations. Potential for some delay to cross-street traffic. Coordinated signals may be required at some Franklin Road intersections to avoid traffic queuing over tracks. Grade separation may be needed at Eagle Road.
GOAL 4: SUPPORT TRANSPORTATION AND LAND USE PLANS				
Objective 4.1 Provide transit improvements that are consistent with adopted local, state, and regional plans	HCT improvements identified in local, state, and regional plans	Included in CIM. Included in Meridian and Nampa Comp Plans Supportive of:Boise, Ada, Canyon Comp Plans	Included in CIM. Included in Nampa Comp Plan. Supportive of:Boise, Ada, Canyon Comp Plans	Not specifically refernced in planning documents. Supportive of broad Comp Plan goals for improved transit service.
Objective 4.3 Provide opportunities for transit-oriented development	Transit-supportive policies are in place			
GOAL 5: FINANCIAL FEASIBILITY				
Objective 5.1 Develop high-capacity transit concepts that have the potential to be funded using a mix of ferderal, state, and local funds	Order-of-magnitude capital cost (in millions)	$230 - $350	$1,150 - $1,720	$560 - $840
	Estimated operations and maintenance cost			
Objective 5.2 Develop cost-effective high-capacity transit concepts	Annualized capital cost per HCT rider			
	Operating cost per HCT rider			

Goals / Design Concepts	Measure	Fairview/Cherry		
		Light Rail	BRT - Exclusive	BRT - Mixed Traffic
GOAL 1: IMPROVE TRANSIT CONNECTIVITY				
Objective 1.1 Connect major city central business districts (CBDs)	Number of major city CBDs with direct HCT connection	Direct access to all four CBDs	Direct access to all four CBDs	Direct access to all four CBDs
Objective 1.2 Connect residential areas with major employment centers	Number of major employment centers served with HCT	Serves 5 designated employment centers	Serves 5 designated employment centers	Serves 5 designated employment centers
Objective 1.3 Connect residential areas with major activity centers	Number of major activity centers served with alignment	Serves 2 main activity centers (Mercy North Hopsital and St. Alphonsus Medical Center), and 7 commercial centers	Serves 2 main activity centers (Mercy North Hopsital and St. Alphonsus Medical Center), and 7 commercial centers	Serves 2 main activity centers (Mercy North Hopsital and St. Alphonsus Medical Center), and 7 commercial centers
GOAL 2: IMPROVE TRANSIT MOBILITY				
Objective 2.1 Provide dedicated transit right-of-way where possible	Width and use of existing right-of-way	77% of the alignment would require additional ROW.	77% of the alignment would require additional ROW.	No additional ROW required
Objective 2.2 Provide good transit transfer opportunities with planned future bus system	Number of locations where the HCT alignment would connect with one bus route	3	3	3
	Number of locations where the HCT alignment would connect with two or more bus routes	19	19	19
Objective 2.3 Minimize transit travel time between major origins/destinations	2035 transit travel times along HCT alignments (Caldwell to Boise Multi-Modal Center)	62 min	62 min	71 min
GOAL 3: MANAGE TRAVEL DEMAND				
Objective 3.1 Improve transit mode share	Estimate of daily 2035 ridership demand on HCT mode	18,900	18,900	17,000
Objective 3.2 Provide service with good access for walk and bike	Existing and forecast year population and population density within 1/2 mile of alignment	2008: 83,376 2008: 4.4 Pop/acre 2035: 110,707 2035: 5.8 Pop/acre	2008: 83,376 2008: 4.4 Pop/acre 2035: 110,707 2035: 5.8 Pop/acre	2008: 83,376 2008: 4.4 Pop/acre 2035: 110,707 2035: 5.8 Pop/acre
	Existing and forecast year employment and employment density within 1/2 mile of alignment	2008: 64,214 2008: 3.4 Jobs/acre 2035: 90,389 2035: 4.8 Jobs/acre	2008: 64,214 2008: 3.4 Jobs/acre 2035: 90,389 2035: 4.8 Jobs/acre	2008: 64,214 2008: 3.4 Jobs/acre 2035: 90,389 2035: 4.8 Jobs/acre
	Qualitative assessment of opportunities for and quality of walk and bike access	Widening planned east of Locust Grove likely to include bike lanes and sidewalks.	Widening planned east of Locust Grove likely to include bike lanes and sidewalks.	Widening planned east of Locust Grove likely to include bike lanes and sidewalks.
Objective 3.3 Provide potential park-and-ride sites with good auto access	Ability to site major park-and-ride facilities	Relatively built out, limiting the availability of land for P&R sites. Further from I-84, potentially limiting the P&R travel shed. Identified as a mobility corridor which could improve accessibility to P&Rs. Would directly serve College of Western Idaho and Idaho Center, both potential sites for large shared P&R lots.		
Objective 3.5 Minimize impacts to traffic operations	Potential impact of HCT concept on traffic operations and major signalized intersections	High level of existing left turns to access driveways would need to be accommodated with U-turns at signalized intersections. Traffic signal priority would be likely which could impact intersection performance.	High level of existing left turns to access driveways would need to be accommodated with U-turns at signalized intersections. Traffic signal priority would be likely which could impact intersection performance.	Mixed traffic operations would impact transit reliability. Long queue lengths could require queue-bypass treatments over 500' long.
GOAL 4: SUPPORT TRANSPORTATION AND LAND USE PLANS				
Objective 4.1 Provide transit improvements that are consistent with adopted local, state, and regional plans	HCT improvements identified in local, state, and regional plans	Plans for future transit service noted in CIM. HCT improvement would support: -Old Boise/Eastside Master Plan -30th Street Area Master Plan -Boise, Ada and Canyon Comp Plans	Plans for future transit service noted in CIM. HCT improvement would support: -Old Boise/Eastside Master Plan -30th Street Area Master Plan -Boise, Ada and Canyon Comp Plans	Plans for future transit service noted in CIM. HCT improvement would support: -Old Boise/Eastside Master Plan -30th Street Area Master Plan -Boise, Ada and Canyon Comp Plans
Objective 4.3 Provide opportunities for transit-oriented development	Transit-supportive policies are in place			
GOAL 5: FINANCIAL FEASIBILITY				
Objective 5.1 Develop high-capacity transit concepts that have the potential to be funded using a mix of ferderal, state, and local funds	Order-of-magnitude capital cost (in millions)	$1,530 - $2,290	$380 - $560	$9 - $14
	Estimated operations and maintenance cost			
Objective 5.2 Develop cost-effective high-capacity transit concepts	Annualized capital cost per HCT rider			
	Operating cost per HCT rider			

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Goals / Design Concepts	Measure	Franklin		
		Light Rail	BRT - Exclusive	BRT - Mixed Traffic
GOAL 1: IMPROVE TRANSIT CONNECTIVITY				
Objective 1.1 Connect major city central business districts (CBDs)	Number of major city CBDs with direct HCT connection	Direct access to all four CBDs	Direct access to all four CBDs	Direct access to all four CBDs
Objective 1.2 Connect residential areas with major employment centers	Number of major employment centers served with HCT	Serves 5 designated employment centers	Serves 5 designated employment centers	Serves 5 designated employment centers
Objective 1.3 Connect residential areas with major activity centers	Number of major activity centers served with alignment	Serves 2 main activity centers (Mercy North Hopsital, St Alphonsus Medical Center and St. Lukes Meridian), and 12 commercial centers	Serves 2 main activity centers (Mercy North Hopsital, St Alphonsus Medical Center and St. Lukes Meridian), and 12 commercial centers	Serves 2 main activity centers (Mercy North Hopsital and St. Lukes Meridian), and 12 commercial centers
GOAL 2: IMPROVE TRANSIT MOBILITY				
Objective 2.1 Provide dedicated transit right-of-way where possible	Width and use of existing right-of-way	43% of the alignment would require additional ROW.	43% of the alignment would require additional ROW.	No additional ROW required
Objective 2.2 Provide good transit transfer opportunities with planned future bus system	Number of locations where the HCT alignment would connect with one bus route	6	6	6
	Number of locations where the HCT alignment would connect with two or more bus routes	14	14	14
Objective 2.3 Minimize transit travel time between major origins/destinations	2035 transit travel times along HCT alignments (Caldwell to Boise Multi-Modal Center)	60 min	60 min	73 min
GOAL 3: MANAGE TRAVEL DEMAND				
Objective 3.1 Improve transit mode share	Estimate of daily 2035 ridership demand on HCT mode	15,800	15,800	13,800
Objective 3.2 Provide service with good access for walk and bike	Existing and forecast year population and population density within 1/2 mile of alignment	2008: 64,071 2008: 3.4 Pop/acre 2035: 93,964 2035: 5.0 Pop/acre	2008: 64,071 2008: 3.4 Pop/acre 2035: 93,964 2035: 5.0 Pop/acre	2008: 66,844 2008: 3.5 Pop/acre 2035: 97,444 2035: 5.1 Pop/acre
	Existing and forecast year employment and employment density within 1/2 mile of alignment	2008: 84,842 2008: 4.5 Jobs/acre 2035: 131,622 2035: 7.0 Jobs/acre	2008: 84,842 2008: 4.5 Jobs/acre 2035: 131,622 2035: 7.0 Jobs/acre	2008: 83,133 2008: 4.4 Jobs/acre 2035: 130,122 2035: 6.8 Jobs/acre
	Qualitative assessment of opportunities for and quality of walk and bike access	Street reconstruction associated with LRT would likely include sidewalks and bike lanes	Street reconstruction associated with BRT would likely include sidewalks and bike lanes	No major street reconstruction or widenting planned. Discontinuous sidewalk and limited shoulder space for bikes west of Maple Grove.
Objective 3.3 Provide potential park-and-ride sites with good auto access	Ability to site major park-and-ride facilities	Moderately built out with a relatively high number of parcels potentially available for P&R sites. Close to I-84 and readily accessible from the freeway. Would directly serve Boise Towne Square Mall, which could potentially accommodate a combined parking structure for P&R and the mall. Would directly serve the Idaho Center, a potential site for a large shared P&R lot.		
Objective 3.5 Minimize impacts to traffic operations	Potential impact of HCT concept on traffic operations and major signalized intersections	Limited amount of existing left turn traffic to driveways would need to be accommodated with U-turns at signalized intersections. Traffic signal priority would be likely which could impact intersection performance.	Limited amount of existing left turn traffic to driveways would need to be accommodated with U-turns at signalized intersections. Traffic signal priority would be likely which could impact intersection performance.	Mixed traffic operations would impact transit reliability. Long queue lengths could require queue-bypass treatments over 500' long.
GOAL 4: SUPPORT TRANSPORTATION AND LAND USE PLANS				
Objective 4.1 Provide transit improvements that are consistent with adopted local, state, and regional plans	HCT improvements identified in local, state, and regional plans	Noted in CIM as potential express bus route. Supportive of broad Comp Plan goals for improved transit service.	Noted in CIM as potential express bus route. Supportive of broad Comp Plan goals for improved transit service.	Noted in CIM as potential express bus route. Supportive of broad Comp Plan goals for improved transit service.
Objective 4.3 Provide opportunities for transit-oriented development	Transit-supportive policies are in place			
GOAL 5: FINANCIAL FEASIBILITY				
Objective 5.1 Develop high-capacity transit concepts that have the potential to be funded using a mix of ferderal, state, and local funds	Order-of-magnitude capital cost (in millions)	$1,480 - $2,220	$380 - $560	$9 - $14
	Estimated operations and maintenance cost			
Objective 5.2 Develop cost-effective high-capacity transit concepts	Annualized capital cost per HCT rider			
	Operating cost per HCT rider			

Goals / Design Concepts	Measure	Overland			I-84/I-184
		Light Rail	BRT - Exclusive	BRT - Mixed Traffic	Express BRT
GOAL 1: IMPROVE TRANSIT CONNECTIVITY					
Objective 1.1 Connect major city central business districts (CBDs)	Number of major city CBDs with direct HCT connection	Directly serves Boise, Nampa and Caldwell CBDs - does not directly serve Meridian CBD	Directly serves Boise, Nampa and Caldwell CBDs - does not directly serve Meridian CBD	Directly serves Boise, Nampa and Caldwell CBDs - does not directly serve Meridian CBD	Directly serves Boise and Caldwell CBDs - does not directly serve Meridian and
Objective 1.2 Connect residential areas with major employment centers	Number of major employment centers served with HCT	Serves 4 designated employment centers	Serves 4 designated employment centers	Serves 4 designated employment centers	Serves 4 designated employment centers
Objective 1.3 Connect residential areas with major activity centers	Number of major activity centers served with alignment	Serves 2 main activity centers (St. Lukes Boise and BSU), and 7 commercial centers	Serves 2 main activity centers (St. Lukes Boise and BSU), and 7 commercial centers	Serves 2 main activity centers (St. Lukes Boise and BSU), and 7 commercial centers	Serves 2 main activity centers (Mercy North Hopsital, St Alphonsus Medical Center and St. Lukes Meridian), and 11 commercial centers
GOAL 2: IMPROVE TRANSIT MOBILITY					
Objective 2.1 Provide dedicated transit right-of-way where possible	Width and use of existing right-of-way	69% of the alignment would require additional ROW.	69% of the alignment would require additional ROW.	No additional ROW required	No additional ROW required
Objective 2.2 Provide good transit transfer opportunities with planned future bus system	Number of locations where the HCT alignment would connect with one bus route	3	3	3	3
	Number of locations where the HCT alignment would connect with two or more bus routes	17	17	17	7
Objective 2.3 Minimize transit travel time between major origins/destinations	2035 transit travel times along HCT alignments (Caldwell to Boise Multi-Modal Center)	61 min	61 min	71 min	57 min
GOAL 3: MANAGE TRAVEL DEMAND					
Objective 3.1 Improve transit mode share	Estimate of daily 2035 ridership demand on HCT mode	17,400	17,400	15,800	15,600
Objective 3.2 Provide service with good access for walk and bike	Existing and forecast year population and population density within 1/2 mile of alignment	2008: 76,024 2008: 3.9 Pop/acre 2035: 97,404 2035: 5.0 Pop/acre	2008: 76,024 2008: 3.9 Pop/acre 2035: 97,404 2035: 5.0 Pop/acre	2008: 76,024 2008: 3.9 Pop/acre 2035: 97,404 2035: 5.0 Pop/acre	2008: 44,997 2008: 2.5 Pop/acre 2035: 68,416 2035: 3.8 Pop/acre
	Existing and forecast year employment and employment density within 1/2 mile of alignment	2008: 69,614 2008: 3.6 Jobs/acre 2035: 105,978 2035: 5.5 Jobs/acre	2008: 69,614 2008: 3.6 Jobs/acre 2035: 105,978 2035: 5.5 Jobs/acre	2008: 69,614 2008: 3.6 Jobs/acre 2035: 105,978 2035: 5.5 Jobs/acre	2008: 59,178 2008: 3.3 Jobs/acre 2035: 90,058 2035: 5.0 Jobs/acre
	Qualitative assessment of opportunities for and quality of walk and bike access	Street reconstruction associated with LRT would likely include sidewalks and bike lanes	Street reconstruction associated with BRT would likely include sidewalks and bike lanes	Sidewalks exist on most portions in Ada County. Shoulder bike lanes are striped in new sections.	Bike and ped access is possible but interchange areas are not pedestrian and bike friendly.
Objective 3.3 Provide potential park-and-ride sites with good auto access	Ability to site major park-and-ride facilities	Moderately built out with a number of parcels potentially available for P&R sites. Relatively close to I-84 with good freeway access.			P&Rs located along I-84 would be within easy access to a large travel shed. Local access could be complicated in vicinity of freeway interchanges. Siting P&Rs for easy auto access near interchanges and maintaining a short walk distance from the P&R to the HCT station is a challenge.
Objective 3.5 Minimize impacts to traffic operations	Potential impact of HCT concept on traffic operations and major signalized intersections	Moderate to high level of existing left turns to access driveways would need to be accommodated with U-turns at signalized intersections. Traffic signal priority would be likely which could impact intersection performance.	Moderate to high level of existing left turns to access driveways would need to be accommodated with U-turns at signalized intersections. Traffic signal priority would be likely which could impact intersection performance.	Mixed traffic operations would impact transit reliability. Long queue lengths could require queue-bypass treatments over 500' long.	
GOAL 4: SUPPORT TRANSPORTATION AND LAND USE PLANS					
Objective 4.1 Provide transit improvements that are consistent with adopted local, state, and regional plans	HCT improvements identified in local, state, and regional plans	Supportive of broad Comp Plan goals for improved transit service.	Supportive of broad Comp Plan goals for improved transit service.	Supportive of broad Comp Plan goals for improved transit service.	Supportive of broad Comp Plan goals for improved transit service.
Objective 4.3 Provide opportunities for transit-oriented development	Transit-supportive policies are in place				
GOAL 5: FINANCIAL FEASIBILITY					
Objective 5.1 Develop high-capacity transit concepts that have the potential to be funded using a mix of ferderal, state, and local funds	Order-of-magnitude capital cost (in millions)	$1,540 - $2,310	$$380 - $570	$9 - $14	
	Estimated operations and maintenance cost				
Objective 5.2 Develop cost-effective high-capacity transit concepts	Annualized capital cost per HCT rider				
	Operating cost per HCT rider				

Summary: Approximate ROW Needs for Light Rail and BRT Exclusive

	Boise Cutoff LRT and BRT Exclusive		Fairview LRT and BRT Exclusive		Franklin LRT and BRT Exclusive		Overland LRT and BRT Exclusive	
TOTAL Length (feet)	176,520		166,380		174,820		161,880	
Length and percentage of Alignment that would require 5 feet or less of additional ROW	114,880	65%	37,780	23%	98,820	57%	50,780	31%
Length and percentage of Alignment that would require 6 to 24 feet of additional ROW	5,200	3%	68,600	41%	15,700	9%	67,900	42%
Length and percentage of Alignment that would require more than 24 feet of additional ROW	40,840	23%	55,400	33%	55,700	32%	43,200	27%
Length and percentage of Alignment that may require structure to accommodate HCT	15,600	9%	4,600	3%	4,600	3%	0	0%

BOISE CUTOFF ROW ASSESSMENT FOR LIGHT RAIL AND BRT EXCLUSIVE

Street/Railroad	Segment Start (ROW Map Sheet Number)	Segment End (ROW Map Sheet Number)	Distance (feet)	Transportation and Land Use Integration Plan (TLIP) Typology Classification	General Existing or Planned ROW (feet)	ROW needed for Exclusive LRT running way (feet)	ROW needed for Exclusive BRT lane (feet)	Additional ROW needed for LRT (feet)	Additional ROW needed for Exclusive BRT (feet)	Additional ROW Contstraints
Cleveland Blvd	7th Ave - Caldwell (Map 1)	Georgia Ave - Caldwell (end of couplet) (Map 1)	8,440	NA	80	82	79	2	0	Assuming two general purpose lanes each on Cleveland and Blaine. If three GP lanes are planned, assume need for 93 feet for LRT and 90 feet for BRT.
Blaine St	7th Ave - Caldwell (Map 1)	Georgia Ave - Caldwell (end of couplet) (Map 1)	8,440	NA	80	82	79	2	0	Assuming two general purpose lanes each on Cleveland and Blaine. If three GP lanes are planned, assume need for 93 feet for LRT and 90 feet for BRT.
Cleveland Blvd/Nampa-Caldwell Blvd	Georgia Ave - Caldwell (end of couplet) (Map 1)	Canyon St - Nampa (beginning of couplet) (Map 5)	33,800	NA	80-100	112	106	12 to 32	6 to 26	
2nd St	Canyon St - Nampa (beginning of couplet) (Map 5)	18th Ave - Nampa (Map 6)	7,500	NA	80	84	80	4	0	
3rd St	Canyon St - Nampa (beginning of couplet) (Map 5)	18th Ave - Nampa (Map 6)	7,500	NA	80	84	80	4	0	
18th Ave	2nd/3rd St - Nampa (Map 6)	Boise Cutoff (Map 6)	1,200	NA	80	84	80	4	0	Grade separation or signal/gate required to cross UPRR main line to access Boise Cutoff.
Boise Cutoff	UPRR Main Line (Map 6)	Karcher Rd (Map 8)	13,000	NA	100	128	130	28	30	Alignment is on a berm through most of this section with several crossing structures that would need to be rebuilt. LRT or BRT could be accommodated within the existing ROW width if railroad tracks were relocated to one side.
Boise Cutoff	Karcher Rd (Map 8)	Approx. 700 ft west of Milwaukee St (Map 17)	70,000	NA	200	178	180	0	0	
Boise Cutoff	Approx. 700 ft west of Milwaukee St (Map 17)	Milwaukee St (Map 17)	700	NA	40	98	98	58	58	Very constrained ROW here.
Boise Cutoff	Milwaukee St (Map 17)	Cole Rd (Map 17)	1,800	NA	180-200	178	180	0	0	I-184 overcrossing abutments located within ROW.
Boise Cutoff	Cole Rd (Map 17)	Approx. 540 ft east of Cole Rd (Map 17)	540	NA	100-140	178	180	38 to 78	40 to 80	
Boise Cutoff	Approx. 540 ft east of Cole Rd (Map 17)	Boise Branch (Map 17)	4,000	NA	200	178	180	0	0	
Boise Branch	Boise Cutoff (Map 17)	Orchard St (Map 18)	5,800	NA	65	110.5	110.5	45.5	45.5	Assumes Boise Branch continues to be used for freight rail. If not, LRT or BRT can be accommodated in existing ROW.
Fairview	Orchard (Map 18)	Chinden (Map 19)	2,600	NA						Freeway interchange area. May require some structures. ROW impacts difficult to calculate at broad level.
Fairview	Chinden (Map 19)	16th St (Map 19)	5,200	NA	80	94	92	14	12	
Main	Chinden (Map 19)	16th St (Map 19)	6,000	NA	100	94	92	0	0	

TOTAL Length	176,520	
Length and percentage of Alignment that would require 5 feet or less of additional ROW	114,880	65%
Length and percentage of Alignment that would require 6 to 24 feet of additional ROW	5,200	3%
Length and percentage of Alignment that would require more than 24 feet of additional ROW	40,840	23%
Length and percentage of Alignment that may require structure to accommodate HCT	15,600	9%

FAIRVIEW ROW ASSESSMENT FOR LIGHT RAIL AND BRT EXCLUSIVE

Street/Railroad	Segment Start (ROW Map Sheet Number)	Segment End (ROW Map Sheet Number)	Distance (feet)	Transportation and Land Use Integration Plan (TLIP) Typology Classification	General Existing or Planned ROW (feet)	ROW needed for Exclusive LRT running way (feet)	ROW needed for Exclusive BRT lane (feet)	Additional ROW needed for LRT (feet)	Additional ROW needed for Exclusive BRT (feet)	Additional ROW Contstraints
Cleveland Blvd	7th Ave - Caldwell (Map 1)	Georgia Ave - Caldwell (end of couplet) (Map 2)	8,440	NA	80	82	79	2	0	Assuming two general purpose lanes each on Cleveland and Blaine. If three GP lanes are planned, assume need for 93 feet for LRT and 90 feet for BRT.
Blaine St	7th Ave - Caldwell (Map 1)	Georgia Ave - Caldwell (end of couplet) (Map 2)	8,440	NA	80	82	79	2	0	Assuming two general purpose lanes each on Cleveland and Blaine. If three GP lanes are planned, assume need for 93 feet for LRT and 90 feet for BRT.
Cleveland Blvd/Nampa-Caldwell Blvd	Georgia Ave - Caldwell (end of couplet) (Map 2)	Canyon St - Nampa (beginning of couplet) (Map 6)	33,800	NA	80-100	112	106	12 to 32	6 to 26	
2nd St	Canyon St - Nampa (beginning of couplet) (Map 6)	11th Ave - Nampa (Map 7)	4,100	NA	80	84	80	4	0	
3rd St	Canyon St - Nampa (beginning of couplet) (Map 6)	11th Ave - Nampa (Map 7)	4,100	NA	80	84	80	4	0	
11th Ave	2nd/3rd St - Nampa (Map 7)	Garrity Blvd	4,500	NA	80	112	106	32	26	Alignment crosses under 3 structures including UPRR main line. Structures would need to be rebuilt.
Garrity Blvd	11th Ave	Flamingo/Happy Valley Rd (Map 8)	10,300	NA	90-100	112	106	12 to 32	6 to 26	Alignment crosses under Boise Cutoff structure. Structure would need to be rebuilt.
Garrity Blvd	Flamingo/Happy Valley Rd (Map 8)	I-84 EB ramps (Map 8)	1,400	NA	140-170	145	139	0	0	Existing 3 lanes NB, 4 SB (incl. 2 SB left turn lanes)
Garrity Blvd	I-84 EB ramps (Map 8)	I-84 WB ramps (Map 8)	2,000	NA						I-84 overcrossing would need to be rebuilt.
Idaho Ctr. Rd	I-84 WB ramps (Map 8)	Franklin Rd (Map 9)	1,300	NA	80-90	123	117	33 to 43	27 to 37	Existing 3 lanes NB, 2 SB
Idaho Ctr. Rd	Franklin Rd (Map 9)	Cherry Ln (Map 10)	5,500	NA	80-100	112	106	12 to 32	6 to 26	Mostly 4 lane existing cross-section
Cherry Ln	Idaho Ctr. Rd (Map 10)	McDermott Rd (county line) (Map 11)	10,500	NA	97	112	106	15	9	
Cherry Ln	McDermott Rd (county line) (Map 11)	Black Cat (Map 12)	5,300	Planned Commercial Arterial	108	108	102	0	0	Exclusive transit can be accomodated by removing parking.
Cherry Ln	Black Cat (Map 12)	Linder (Map 13)	10,500	Residential Arterial	97	112	106	15	9	
Fairview	Linder (Map 13)	Curtis (Map 18)	42,400	Mobility Corridor (under study)	122-128	138	134	10 to 16	6 to 12	TLIP shows western terminus of planned 7-lane cross section at Linder. Funded projects include widening to 7-lanes to Locust Grove.
Fairview	Orchard (Map 18)	Chinden (Map 19)	2,600	NA						Freeway interchange area. May require some structures. ROW impacts difficult to calculate at broad level.
Fairview	Chinden (Map 19)	16th St (Map 19)	5,200	NA	80	94	92	14	12	
Main	Chinden (Map 19)	16th St (Map 19)	6,000	NA	100	94	92	0	0	

TOTAL Length	166,380	
Length and percentage of Alignment that would require 5 feet or less of additional ROW	37,780	23%
Length and percentage of Alignment that would require 6 to 24 feet of additional ROW	68,600	41%
Length and percentage of Alignment that would require more than 24 feet of additional ROW	55,400	33%
Length and percentage of Alignment that may require structure to accommodate HCT	4,600	3%

FRANKLIN ROW ASSESSMENT FOR LIGHT RAIL AND BRT EXCLUSIVE

Street/Railroad	Segment Start (ROW Map Sheet Number)	Segment End (ROW Map Sheet Number)	Distance (feet)	Transportation and Land Use Integration Plan (TLIP) Typology Classification	General Existing or Planned ROW (feet)	ROW needed for Exclusive LRT running way (feet)	ROW needed for Exclusive BRT lane (feet)	Additional ROW needed for LRT (feet)	Additional ROW needed for Exclusive BRT (feet)	Additional ROW Contstraints
Cleveland Blvd	7th Ave - Caldwell (Map 1)	Georgia Ave - Caldwell (end of couplet) (Map 2)	8,440	NA	80	82	79	2	0	Assuming two general purpose lanes each on Cleveland and Blaine. If three GP lanes are planned, assume need for 93 feet for LRT and 90 feet for BRT.
Blaine St	7th Ave - Caldwell (Map 1)	Georgia Ave - Caldwell (end of couplet) (Map 2)	8,440	NA	80	82	79	2	0	Assuming two general purpose lanes each on Cleveland and Blaine. If three GP lanes are planned, assume need for 93 feet for LRT and 90 feet for BRT.
Cleveland Blvd/Nampa-Caldwell Blvd	Georgia Ave - Caldwell (end of couplet) (Map 2)	Canyon St - Nampa (beginning of couplet) (Map 6)	33,800	NA	80-100	112	106	12 to 32	6 to 26	
2nd St	Canyon St - Nampa (beginning of couplet) (Map 6)	11th Ave - Nampa (Map 7)	4,100	NA	80	84	80	4	0	
3rd St	Canyon St - Nampa (beginning of couplet) (Map 6)	11th Ave - Nampa (Map 7)	4,100	NA	80	84	80	4	0	
11th Ave	2nd/3rd St - Nampa (Map 7)	Garrity Blvd (Map 7)	4,500	NA	80	112	106	32	26	Alignment crosses under 3 structures including UPRR main line. Structures would need to be rebuilt.
Garrity Blvd	11th Ave (Map 7)	Flamingo/Happy Valley Rd (Map 9)	10,300	NA	90-100	112	106	12 to 32	6 to 26	Alignment crosses under Boise Cutoff structure. Structure would need to be rebuilt.
Garrity Blvd	Flamingo/Happy Valley Rd (Map 9)	I-84 EB ramps (Map 9)	1,400	NA	140-170	145	139	0	0	Existing 3 lanes NB, 4 SB (incl. 2 SB left turn lanes)
Garrity Blvd	I-84 EB ramps (Map 9)	I-84 WB ramps (Map 9)	2,000	NA						I-84 overcrossing would need to be rebuilt.
Idaho Ctr. Rd	I-84 WB ramps (Map 9)	Franklin Rd (Map 9)	1,300	NA	80-90	123	117	33 to 43	27 to 37	Existing 3 lanes NB, 2 SB
Franklin Rd	Idaho Ctr. Rd (Map 9)	McDermott Rd (county line) (Map 10)	10,500	NA	97	112	106	15	9	
Franklin Rd	McDermott Rd (county line) (Map 10)	Boise Branch (Map 18)	58,000	Planned Commercial Arterial	108	108	102	0	0	Exclusive transit can be accomodated by removing parking.
Boise Branch	Franklin Rd (Map 18)	Orchard St (Map 18)	5,800	NA	65	110.5	110.5	45.5	45.5	Assumes Boise Branch continues to be used for freight rail. If not, LRT or BRT can be accommodated in existing ROW.
Franklin Rd	Boise Branch (Map 18)	Orchard St (Map 18)	3,840	Planned Commercial Arterial	108	108	102	0	0	Exclusive transit can be accomodated by removing parking.
Orchard St	Franklin Rd	Irving St (Map 18)	4,500	Town Center Arterial	110	108	102	0	0	Exclusive transit can be accomodated by removing parking.
Fairview	Orchard (Map 19)	Chinden (Map 19)	2,600	NA						Freeway interchange area. May require some structures. ROW impacts difficult to calculate at broad level.
Fairview	Chinden (Map 19)	16th St (Map 19)	5,200	NA	80	94	92	14	12	
Main	Chinden (Map 19)	16th St (Map 19)	6,000	NA	100	94	92	0	0	

TOTAL Length	174,820	
Length and percentage of Alignment that would require 5 feet or less of additional ROW	98,820	57%
Length and percentage of Alignment that would require 6 to 24 feet of additional ROW	15,700	9%
Length and percentage of Alignment that would require more than 24 feet of additional ROW	55,700	32%
Length and percentage of Alignment that may require structure to accommodate HCT	4,600	3%

OVERLAND ROW ASSESSMENT FOR LIGHT RAIL AND BRT EXCLUSIVE

Street/Railroad	Segment Start (ROW Map Sheet Number)	Segment End (ROW Map Sheet Number)	Distance (feet)	Transportation and Land Use Integration Plan (TLIP) Typology Classification	General Existing or Planned ROW (feet)	ROW needed for Exclusive LRT running way (feet)	ROW needed for Exclusive BRT lane (feet)	Additional ROW needed for LRT (feet)	Additional ROW needed for Exclusive BRT (feet)	Additional ROW Contstraints
Cleveland Blvd	7th Ave - Caldwell (Map 1)	Georgia Ave - Caldwell (end of couplet) (Map 2)	8,440	NA	80	82	79	2	0	Assuming two general purpose lanes each on Cleveland and Blaine. If three GP lanes are planned, assume need for 93 feet for LRT and 90 feet for BRT.
Blaine St	7th Ave - Caldwell (Map 1)	Georgia Ave - Caldwell (end of couplet) (Map 2)	8,440	NA	80	82	79	2	0	Assuming two general purpose lanes each on Cleveland and Blaine. If three GP lanes are planned, assume need for 93 feet for LRT and 90 feet for BRT.
Cleveland Blvd/Nampa-Caldwell Blvd	Georgia Ave - Caldwell (end of couplet) (Map 2)	Canyon St - Nampa (beginning of couplet) (Map 6)	33,800	NA	80-100	112	106	12 to 32	6 to 26	
2nd St	Canyon St - Nampa (beginning of couplet) (Map 6)	11th Ave - Nampa (Map 6)	4,100	NA	80	84	80	4	0	
3rd St	Canyon St - Nampa (beginning of couplet) (Map 6)	11th Ave - Nampa (Map 6)	4,100	NA	80	84	80	4	0	
11th Ave	2nd/3rd St - Nampa (Map 6)	Garrity Blvd (Map 7)	4,500	NA	80	112	106	32	26	Alignment crosses under 3 structures including UPRR main line. Structures would need to be rebuilt.
Garrity Blvd	11th Ave (Map 7)	Kings Rd (Map 8)	4,900	NA	90-100	112	106	12 to 32	6 to 26	Alignment crosses under Boise Cutoff structure. Structure would need to be rebuilt.
Airport Rd	Kings Rd (Map 8)	McDermott Rd (county line) (Map 9)	15,800	NA	97	112	106	15	9	
Overland Rd	McDermott Rd (county line) (Map 9)	Half-mile east of Ten Mile Rd (Map 11)	13,000	New Residential Arterial	97	112	106	15	9	
Overland Rd	Half-mile east of Ten Mile Rd (Map 11)	Half-mile east of Eagle Rd (Map 13)	21,000	Planned Commercial Arterial	108	108	102	0	0	Exclusive transit can be accomodated by removing parking.
Overland Rd	Half-mile east of Eagle Rd (Map 13)	Maple Grove Rd (Map 15)	13,200	Residential Arterial	97	112	106	15	9	
Overland Rd	Maple Grove Rd (Map 15)	Vista Ave (Map 18)	21,300	Transitional / Commercial Arterial	87	102	96	15	9	
Vista Ave	Overland Rd (Map 18)	Capitol Blvd (Map 18)	4,700	Planned Commercial Arterial	108	108	102	0	0	Exclusive transit can be accomodated by removing parking.
Capitol Blvd	Vista Ave (Map 18)	Myrtle (Map 18)	4,600	Mobility Arterial	122-128	138	134	10 to 16	6 to 12	

TOTAL Length	161,880	
Length and percentage of Alignment that would require 5 feet or less of additional ROW	50,780	31%
Length and percentage of Alignment that would require 6 to 24 feet of additional ROW	67,900	42%
Length and percentage of Alignment that would require more than 24 feet of additional ROW	43,200	27%
Length and percentage of Alignment that may require structure to accommodate HCT	0	0%

Objective 3.2: Provide service with good access for pedestrians and bicyclists

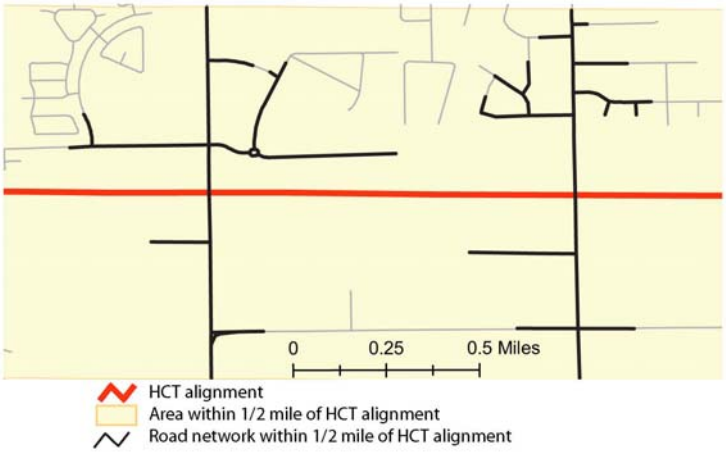
The alignment rankings for pedestrian/bicycle access were based on population and densities within ½ mile of each proposed alignment and a qualitative assessment of walk and bike access.

One-half mile represents the distance that many people are willing to walk to a transit station with high-quality transit service. Bicyclists are generally willing to travel farther, but they represent only a small portion of potential transit riders. The following describes the pedestrian and bicycle context for the Treasure Valley HCT Study Priority Corridor Phase 1 AA and discusses issues and constraints to consider when planning for pedestrian and bicycle access to transit.

Qualitative Assessment – Arterial Walk/Bike Access

Although a simple half-mile buffer is convenient for a general analysis of population and employment proximity and access, it does not always provide a complete picture. As the illustration below shows, there can be instances where the actual travel distance within a ½ mile buffer is significantly longer than ½ mile. The street network shown below, consists of cul-de-sacs and local streets that feed into collectors and arterials. This street pattern can limit pedestrian access because of limited connectivity which results in out-of-direction travel.

Closely spaced grid networks, such as is found near the downtown cores of Boise, Nampa and Caldwell, provide good pedestrian connectivity which reduce walk distances. All of the proposed alignments would pass through large areas with poor connectivity (and therefore longer walk distances to stations).



The arterial alignments are similar in that they all have relatively good walk access near the downtowns and they would all have access-related challenges in suburban residential areas. This pattern predominates the three arterial alignments west of Cole Road (except for the downtown areas) making for relatively poor walk access to many of the adjacent residential areas.

Qualitative Assessment Boise Cutoff and I-84 Walk/Bike Access

The Boise Cutoff alignment has little or no public access available except at the major north/south roadway crossings. Generally this results in poorer pedestrian and bike access than would be available with the arterial alignments. The City of Meridian is exploring opportunities for a multi-use pathway using portions of the Boise Cutoff right of way. If developed, this pathway could improve access to HCT stations along the alignment.

I-84 stations would be in the vicinity of existing freeway interchanges and ramp systems. While sidewalks generally exist in the vicinity, freeway interchange areas are not considered pedestrian friendly and significant improvements would likely be required to facilitate pedestrian and bicycle access to HCT stations along I-84.

Qualitative Access Summary

The access opportunities and quality of access are summarized below:

- Fairview/Cherry
    - Somewhat limited access to adjacent residential areas.
    - Planned to be widened to seven lanes east of Locust Grove. The newly widened roadway will likely include sidewalk improvements and bike lanes.
- Boise Cutoff
    - Very limited access to adjacent residential areas.
    - City of Meridian is exploring multi-use pathway in Boise Cutoff ROW.
- Franklin
    - Limited access to adjacent residential and employment areas.
    - Large portions zoned industrial.
    - Discontinuous sidewalks and bike lanes.
- Overland
    - Slightly more local street connectivity than Franklin and Fairview.
    - Largely continuous sidewalks and bike lanes.
- I-84
    - Interchange areas are not bike and pedestrian friendly.
    - Capital improvements would be needed to facilitate access.

Population and Employment within One-Half Mile of HCT Alignments

The following tables summarize the population and employment within ½ mile of the various HCT alignments being evaluated. The data is from COMPASS and is consistent with the data used for ridership modeling.

Table 3.2-1
Population and Jobs within 1/2 Mile of HCT Alignment (2008 and 2035)

	2008 Population	2035 Population	Population Change	2008 Jobs	2035 Jobs	Employment Change
Overland	76,024	97,404	21,380	69,614	105,978	36,364
I-84	44,997	68,416	23,419	59,178	90,058	30,880
Franklin Mixed	66,844	97,444	30,600	83,133	130,122	46,988
Franklin Exclusive	64,071	93,964	29,894	84,842	131,622	46,780
Fairview	83,376	110,707	27,331	64,214	90,389	26,174
Boise Cutoff Commuter Rail	68,291	98,749	30,458	84,344	131,786	47,442
Boise Cutoff BRT or LRT	72,467	104,033	31,567	87,248	133,180	45,932

Table 3.2-2
Population and Job Density per Acre (2008 and 2035)

	2008 Population	2035 Population	2008 Jobs	2035 Jobs
Overland	3.9	5.0	3.6	5.5
I-84	2.5	3.8	3.3	5.0
Franklin Mixed	3.5	5.1	4.4	6.8
Franklin Exclusive	3.4	5.0	4.5	7.0
Fairview	4.4	5.8	3.4	4.8
Boise Cutoff Commuter Rail	3.5	5.1	4.3	6.7
Boise Cutoff BRT or LRT	3.7	5.3	4.4	6.8

Additional Discussion on Bicycle and Pedestrian Access

Safety and Comfort

In order for bicyclists and pedestrians to get to a transit station, good bicycle and pedestrian infrastructure must be in place. If there are areas of missing sidewalks or intersections that are dangerous to cross on foot, most people will not be willing to walk. Similarly, if the streets aren't designed to accommodate bicyclists, few people will bicycle. Just as important as making it *possible* to bicycle or walk to transit is making it *pleasant*. Outside of the downtown cores, the street network consists of a one-mile grid of major streets, but no connected local street network. Local streets often have street

trees, low traffic volumes, and short crossing distances, and are enjoyable for walking and bicycling. The lack of connectivity between local streets means that pedestrians and bicyclists will be required to use the less pleasant and less safe major streets. This will limit many people's willingness to walk or bicycle to a transit station.

Light rail, commuter rail, and BRT on exclusive right-of-way would all entail rebuilding the street and adding bike lanes and sidewalks. By contrast, streets would be unchanged for BRT in mixed traffic; bike lanes and sidewalks would not be added unless there was a planned street improvement project (as listed in the RTP).

The City of Meridian has conducted a preliminary feasibility study for building a multi-use path within the railroad right-of-way associated with the Boise Cutoff. A continuous path alongside the proposed HCT alignment could provide high-quality bicycle and pedestrian access to the stations.

Bicycle Capacity

Bicyclists often prefer to bring their bikes with them on transit. The bicycle may be needed at both ends of the transit ride, or the bicycle owner may be concerned about theft or vandalism. Buses can only carry two bicycles, while trains can be outfitted with hooks or standing areas to accommodate four or more bicycles per car. When the demand for bicycle space exceeds supply, the lack of capacity can dissuade potential riders from using transit.

GOAL 4: SUPPORT TRANSPORTATION AND LAND USE PLANS

Objective 4.1. Provide transit improvements that are consistent with adopted local, state, and regional plans.

Introduction. The purpose of this objective is to qualitatively assess how well the proposed HCT alignments support adopted local, state, and regional planning documents.

Methodology.

1. Conduct a comprehensive search for local and regional planning documents in Ada and Canyon Counties. This included documents from cities, counties, the metropolitan planning organization, the Ada County highway district, Capital City Development Corporation, and the state of Idaho.
2. Verify with the agencies involved that the list of planning documents is comprehensive.
3. Extract policies from each planning document that are relevant to high-capacity transit in the Treasure Valley.

Ranking. (5 high to 1 low)

5: Alignment and mode is specifically mentioned in at least three planning documents.
4: Alignment and mode is specifically mentioned in at least two planning documents.
3: Alignment and mode is specifically mentioned in at least one planning document.
2: Either the alignment or the mode is specifically mentioned in at least one planning document.
1: Neither the alignment or the mode is specifically mentioned in any planning documents.

Analysis.

Fairview/Cherry:

- In the COMPASS Communities in Motion Plan, "Future improvements along Fairview/Cherry) should respect future plans for transit service" (104)
- Would increase transit service to the Old Boise/Eastside District. Supports objectives laid out in the "Old Boise/Eastside Master Plan: "Establish a multimodal system of transportation to serve the Old Boise–Eastside area that encourages the use of transit, bicycling and walking as alternatives to automobiles."
- Would support the 30th Street Area Master Plan goals for the Main Street and Fairview Avenue subdistrict because the proposed transit service in that plan includes regional transit service along Fairview Ave.
- Partially supports the River St – Myrtle St Master Plan: "Improve regional transit service to downtown Boise in general and to the River–Myrtle planning area in particular." (58)

- Supports Boise City Comprehensive Plan Goal 6.2, "Provide a high-quality public transit system."
- Supports City of Eagle Comprehensive Plan goals: "Encourage the development of a local and regional public transit system. The public transit system is to provide basic mobility for some, alternative transportation for others, and a non-drive alone mode for everyone;" and "Work regionally with COMPASS and Valleyride to plan for the potential of a regional rail or bus rapid transit system."
- Supportive of Canyon County policy no. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods, and services within and beyond Canyon County that is compatible with adjoining counties" (33)
- Supports Ada County Comprehensive Plan Goal 8.7: "Ada County seeks a comprehensive transportation network that provides mobility and choices for all segments of the community by encouraging the use of public transit, bicycling, and walking as alternatives to automobile travel."
- Supports Canyon County Comprehensive Plan Policy No. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods and services within and beyond Canyon County that is compatible with adjoining counties."

Boise Cutoff:

- Listed in the COMPASS Communities Plan as a planned route for rail or BRT service (133)
- Commuter rail in this corridor is supported by the City of Meridian Comprehensive Plan (pg 57, 71)
- Commuter rail or light rail is supported by the City of Nampa Comprehensive Plan (91, 97)
- Rail is supported by the CCDC Westside Master Plan: "Potential rail corridors should be considered in the near future" (46)
- Supportive of the VRT Valley Ride Strategic Plan, which identifies rail as an "integral part of a long-term public transportation system in the Treasure Valley" (4)
- Supports Boise City Comprehensive Plan Goal 6.2, "Provide a high-quality public transit system."
- Supports City of Eagle Comprehensive Plan goals: "Encourage the development of a local and regional public transit system. The public transit system is to provide basic mobility for some, alternative transportation for others, and a non-drive alone mode for everyone;" and "Work regionally with COMPASS and Valleyride to plan for the potential of a regional rail or bus rapid transit system."
- Supportive of Canyon County policy no. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods, and services within and beyond Canyon County that is compatible with adjoining counties" (33)
- Supports Ada County Comprehensive Plan Goal 8.7: "Ada County seeks a comprehensive transportation network that provides mobility and choices for all

segments of the community by encouraging the use of public transit, bicycling, and walking as alternatives to automobile travel."
- Supports Canyon County Comprehensive Plan Policy No. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods and services within and beyond Canyon County that is compatible with adjoining counties."

Franklin:

- Franklin Road is listed in the COMPASS Communities in Motion Plan as a desirable express bus route. (pg 95, 110)
- Supports Boise City Comprehensive Plan Goal 6.2, "Provide a high-quality public transit system."
- Supports City of Eagle Comprehensive Plan goals: "Encourage the development of a local and regional public transit system. The public transit system is to provide basic mobility for some, alternative transportation for others, and a non-drive alone mode for everyone;" and "Work regionally with COMPASS and Valleyride to plan for the potential of a regional rail or bus rapid transit system."
- Supportive of Canyon County policy no. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods, and services within and beyond Canyon County that is compatible with adjoining counties" (33)
- Supports Ada County Comprehensive Plan Goal 8.7: "Ada County seeks a comprehensive transportation network that provides mobility and choices for all segments of the community by encouraging the use of public transit, bicycling, and walking as alternatives to automobile travel."
- Supports Canyon County Comprehensive Plan Policy No. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods and services within and beyond Canyon County that is compatible with adjoining counties."

Overland:

- Fully supports the River St – Myrtle St Master Plan: "Improve regional transit service to downtown Boise in general and to the River–Myrtle planning area in particular." (58) This alignment would utilize Capital Blvd, which is within the River-Myrtle planning area.
- Supports Boise City Comprehensive Plan Goal 6.2, "Provide a high-quality public transit system."
- Supports City of Eagle Comprehensive Plan goals: "Encourage the development of a local and regional public transit system. The public transit system is to provide basic mobility for some, alternative transportation for others, and a non-drive alone mode for everyone;" and "Work regionally with COMPASS and Valleyride to plan for the potential of a regional rail or bus rapid transit system."
- Supportive of Canyon County policy no. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods, and services within and beyond Canyon County that is compatible with adjoining counties" (33)
- Supports Ada County Comprehensive Plan Goal 8.7: "Ada County seeks a comprehensive transportation network that provides mobility and choices for all

segments of the community by encouraging the use of public transit, bicycling, and walking as alternatives to automobile travel."

- Supports Canyon County Comprehensive Plan Policy No. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods and services within and beyond Canyon County that is compatible with adjoining counties."

I-84/I-184:

- Supports Boise City Comprehensive Plan Goal 6.2, "Provide a high-quality public transit system."
- Supports City of Eagle Comprehensive Plan goals: "Encourage the development of a local and regional public transit system. The public transit system is to provide basic mobility for some, alternative transportation for others, and a non-drive alone mode for everyone;" and "Work regionally with COMPASS and Valleyride to plan for the potential of a regional rail or bus rapid transit system."
- Supportive of Canyon County policy no. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods, and services within and beyond Canyon County that is compatible with adjoining counties" (33)
- Supports Ada County Comprehensive Plan Goal 8.7: "Ada County seeks a comprehensive transportation network that provides mobility and choices for all segments of the community by encouraging the use of public transit, bicycling, and walking as alternatives to automobile travel."
- Supports Canyon County Comprehensive Plan Policy No. 1: "Encourage a multi-modal transportation system for the efficient and expeditious movement of people, goods and services within and beyond Canyon County that is compatible with adjoining counties."