Technical Memorandum

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Date: December 2, 2014

RE: Main-McVay Transit Study – DRAFT Tier II Screening Evaluation Memorandum – Part B

At the October 28, 2014 meeting, the Stakeholder Advisory Committee made recommendations regarding three of the seven critical Decision Elements for the Main-McVay Transit Study:

- BRT Station Spacing
- BRT Routing: Main Street East, Eastern Terminus
- BRT Routing: Main Street Downtown

Decisions made at the October 28 SAC meeting were used to inform the evaluation of the remaining four Decision Elements:

- BRT Routing: McVay South
- Enhanced Bus
- BRT Service
- BRT Lane Configurations

This technical memorandum summarizes the analysis and findings from the Tier II Screening Evaluation of the remaining four critical Decision Elements and Options for the Main-McVay Transit Study, along with a summary of prior work completed in Tier I.

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For Additional Information or to Comment

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Written Comments at Meetings	A Comment Box is available at Stakeholder Advisory Committee meetings for submitting written comments. Please note that oral comments are not taken at these meetings. Refer to the website for the dates and locations of meetings.

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1 Executive Summary

The Main-McVay Transit Study is intended to identify and evaluate the most appropriate and promising transit options for the Main-McVay Corridor to potentially be pursued by Lane Transit District (LTD) and the City of Springfield. Throughout this Study and any possible subsequent studies, the "No-Change" Option will be carried forward and compared as the base case. This Study is one of a number of studies being conducted by the City of Springfield as the City considers the future of the "heart" of the community. Information about this Study as well as other area studies can be found at http://ourmainstreetspringfield.org.

1.1 Report Purpose and Organization

The purpose of this report is to summarize the findings of the Tier II Screening Evaluation of proposed transit solutions in the Main-McVay Corridor. This report will be used by the Project Team, the Stakeholder Advisory Committee (SAC), and the Governance Team (GT) to narrow the broad range of transit improvement solutions and select a range of Most Promising Transit Solutions. If the City of Springfield and LTD pursue a transit project in the Main-McVay Corridor, then the proposed range of Most Promising Transit Solutions resulting from this study would be advanced to that future study.

1.2 Introduction

The term "transit solutions" in the Project Team's analysis has evolved to signify a series of Decision Elements and Options that, when combined, would form complete transit options for the Corridor. During the Tier I Screening, a broad range of transit solutions was developed and the Project Team screened each solution to determine which had the potential to address the Study's Purpose, Need, Goals and Objectives (PNGO). Transit solutions that had the potential to address the PNGO were recommended for advancement to the next level of evaluation (the Tier II evaluation criteria screening), while options that were not consistent with the PNGO were recommended for elimination. The findings and recommendations from the Tier I Screening were considered by the SAC (on September 30, 2014) and the GT (on October 9, 2014) in determining the narrowed range of transit solutions to advance to the Tier II Screening Evaluation (summarized in Table 1.2-1 and described in Section 2).

The range of possible transit solutions involve Enhanced Bus (EB) or Bus Rapid Transit (BRT) options. Enhanced Bus consists of relatively minor capital and operating improvements that can be made to fixed route bus service in a corridor to improve the speed and reliability of transit service. Typical EB options use transit signal priority, queue-jump lanes, and/or skip-stop express service. BRT is defined as a variety or menu of capital and operating improvements within a corridor that are made to improve transit travel times, reliability and ridership. BRT is a branded service that combines elements of rail transit and the flexibility of buses. LTD currently operates BRT (branded as EmX) on two corridors in the Eugene-Springfield area, and will soon be under construction with a third corridor in west Eugene.

Table 1.2-1. Narrowed Range of Decision Elements and Options Advanced to Tier II Evaluation, October 9, 2014

Decision Elements	Options
BRT Station Spacing	• Stations spaced less than 1/3 mile apart • Stations spaced approx. 1/3 mile apart • Stations spaced more than 1/3 mile apart
BRT Routing: Main Street East, Eastern Terminus	• Thurston Station (with connector service) • Thurston High School (with connector service)
BRT Routing: Main Street Downtown	• Main Street / South A Couplet • South A Street (eastbound and westbound) • South A Street to 10th or 14th; Couplet east of 10th or 14th
BRT Routing: McVay South	• McVay Highway (west side of I-5) • Old Franklin (east side of I-5)
Enhanced Bus Options	• Main Street • McVay Highway • Main Street Express
BRT Service Options	• Franklin-Main; Gateway-McVay • Franklin-Gateway; Main; McVay
BRT Lane Configurations	• Low Exclusivity • Moderate Exclusivity • High Exclusivity

1.3 Summary of Findings and Recommendations

1.3.1 SAC Draft Recommendations October 28, 2014 – 3 Decision Elements

On October 28, 2014, the SAC met to review the findings of the first part of the Tier II Screening Evaluation and made recommendations regarding which Decision Elements to advance to the draft range of Most Promising Transit Solutions. The SAC made recommendations regarding BRT Spacing, BRT Routing on Main Street East / Eastern Terminus and BRT Routing on Main Street Downtown; however, the SAC determined that they needed additional information to make a recommendation on BRT Routing on McVay South and advanced both options to the next level of evaluation. Those recommendations are summarized in Table 1.3-1 and described below in Sections 1.3.1.1 through 1.3.1.4.

Table 1.3-1. SAC's October 28, 2014 Recommendations for Tier II Evaluation - Part A

Range of Decision Elements	SAC Recommendations
BRT Station Spacing	• Stations spaced approx. 1/3 mile apart
BRT Routing: Main Street East, Eastern Terminus	• Combination – Thurston Station with connector service and some trips extended to Thurston High School during peak periods
BRT Routing: Main Street Downtown	• South A Street to 10th; Couplet east of 10th
BRT Routing: McVay South	No recommendation at this time - advance both options to more evaluation • McVay Highway (west side of I-5) • Old Franklin (east side of I-5)

1.3.1.1 BRT Station Spacing

The SAC recommended that the "1/3 mile BRT stop spacing" option be carried forward and that the "less than 1/3 mile" and "greater than 1/3 mile" options be eliminated. Note that the stop spacing is an average distance for stop spacing and that stops more or less than 1/3 mile apart can be implemented based on adjacent land uses and activity centers.

1.3.1.2 BRT Routing: Main Street East, Eastern Terminus

The SAC recommended that the combination option (which extends the service to Thurston High School for a limited number of trips that meet key school start and end times) be carried forward, assuming a safe and convenient routing and station location can be established. If not, the Project Team recommends using the Thurston Station as the eastern terminus for all trips. The option of extending every trip to Thurston High School would significantly increase ridership costs without a commensurate increase in ridership.

1.3.1.3 BRT Routing: Main Street Downtown

The SAC recommended that a Combination Option, using 10th Street, be carried forward. This new Combination option [added by the Project Team following the September 30, 2014 SAC meeting] provides for the same access (stop locations) as the Couplet Option but eliminates bus travel through the most congested part of downtown Springfield.

1.3.1.4 BRT Routing: McVay South

Since there was little to no data from the analysis to differentiate the McVay Highway and Old Franklin Options, the SAC recommended that both options be carried forward into the Tier II Screening Evaluation as more data becomes available.

Stakeholder Advisory Committee Meetings for Recommendations

Tier II Evaluation Part A – October 28, 2014

- BRT Station Spacing
- BRT Routing: Main Street East, Eastern Terminus
- BRT Routing: Main Street Downtown

Tier II Evaluation Part B – December 9, 2014

- BRT Routing: McVay South
- Enhanced Bus Options
- BRT Service Options
- BRT Lane Configurations

Range of Most Promising Solutions – January 27, 2015

- No Action
- Main Street Segment
- McVay Segment

1.3.2 Project Team Recommendations – Remaining 4 Decision Elements

This Tier II Screening Evaluation considers the remaining four Decision Elements for the SAC to provide draft recommendations at their December 9, 2014 meeting. After their December meeting, the project team will package the SAC's recommended Decision Elements into a draft range of Most Promising Transit Solutions, to be considered by the SAC when they make a final recommendation at their January 27, 2015 meeting.

The Tier II Screening Evaluation (Part B, November 2014) and the Project Team recommendations are summarized below in Sections 1.3.2.1 through 1.3.2.4 and detailed in Chapter 3 of this memorandum.

1.3.2.1 BRT Routing: McVay South

The Project Team evaluated two options:

- Option 1: McVay Highway (west side of I-5)
- Option 2: Old Franklin (east side of I-5)

The resulting evaluation scoring is summarized below and detailed in Section 3.2 of this technical memo.

BRT Routing: McVay South

Goals and Objectives	Evaluation Criteria	Decision Element Options: Option 1: McVay Highway (west side of I-5)	Decision Element Options: Option 2: Old Franklin (east side of I-5)
Goal 1:	Improve corridor transit service	2	3
Goal 2:	Meet current and future transit demand in a cost-effective manner	1	-1
Goal 3:	Support economic development, revitalization and land use redevelopment opportunities for the corridor	10	10
Goal 4:	Enhance the safety and security of the corridor	8	8
Goal 5:	Enhance other modes of travel	4	5
SCORING TOTAL		**25**	**25**

The Project Team recommends **Advancing both the McVay and Old Franklin Options** until lane exclusivity decisions are made and the package of transit solutions is developed. Further review of the package of transit solutions may reveal advantages of one option or the other. However, it is possible that the technical differences between the two options may continue to be insignificant and that choosing one option over the other may be based on other community values.

1.3.2.2 Enhanced Bus Options

The Project Team evaluated three options:

- Option 1: Main Street
- Option 2: McVay Highway
- Option 3: Main Street Express

The resulting evaluation scoring is summarized below and detailed in Section 3.3 of this technical memo.

Enhanced Bus Options

Goals and Objectives	Evaluation Criteria	Decision Element Options: Option 1: Main Street	Decision Element Options: Option 2: McVay Highway	Decision Element Options: Option 3: Main Street Express
Goal 1:	Improve corridor transit service	8	2	7
Goal 2:	Meet current and future transit demand in a cost-effective manner	-1	-2	-8
Goal 3:	Support economic development, revitalization and land use redevelopment opportunities for the corridor	1	0	1
Goal 4:	Enhance the safety and security of the corridor	5	7	3
Goal 5:	Enhance other modes of travel	4	5	2
SCORING TOTALS		**17**	**12**	**5**

The Project Team recommends **Advancing Enhanced Bus Option 1: Main Street and Option 2: McVay Highway** into the package of transit solutions. Both options are predicted to have an increase in ridership by 2035 and a reduction in operating costs with few adverse impacts on the natural or built environment. Additionally, **Eliminate Option 3: Main Street Express** because it will increase operating costs without a commensurate gain in ridership and, thus, is not cost-effective.

1.3.2.3 BRT Service Options

The Project Team evaluated the two original corridors based on the evaluation criteria. The two original corridors are:

- Option 1: Franklin-Main; Gateway-McVay
- Option 2: Franklin-Gateway; Main; McVay

The only notable difference between Options 1 and 2 is whether or not the Gateway and McVay BRT segments are linked, which impacts ridership, cost per trip, and a few other criteria. However, Option 2 did not allow for the independent evaluation of the Main Street and McVay Highway Segments since both were included in that option. To better understand the differences between the options, the Project Team split BRT Service Option 2 into Option 2A and Option 2B. Option 2A would add BRT service only on the Franklin-Main corridor (McVay Highway to LCC would continue to be served by Route #85) and Option 2B would add BRT service only on the Gateway-McVay corridor (Main Street would continue to be served by Route #11). This allowed for the independent evaluation of the two BRT corridor segments while honoring the direction from the Tier I screening to prioritize BRT corridors that travel east-west and north-south.

The revised options evaluated by the Project Team are:

- Option 1: Franklin-Main; Gateway-McVay
- Option 2A: Franklin-Main
- Option 2B: Gateway-McVay

The resulting evaluation scoring is summarized below and detailed in Section 3.4 of this technical memo.

REVISED BRT Service Options

Goals and Objectives	Evaluation Criteria	Decision Element Options: Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay
Goal 1:	Improve corridor transit service	26	17	8
Goal 2:	Meet current and future transit demand in a cost-effective manner	1	12	-11
Goal 3:	Support economic development, revitalization and land use redevelopment opportunities for the corridor	22	17	15
Goal 4:	Enhance the safety and security of the corridor	11	7	5
Goal 5:	Enhance other modes of travel	9	6	3
	SCORING TOTALS	**69**	**59**	**20**

The Project Team recommends **Advancing the extension of BRT from the Franklin EmX line to the Main Street segment (Option 2A)** as a potentially promising solution. The Project Team also recommends **Eliminating the extension of BRT from the Gateway EmX line to McVay Highway (Options 1 and 2B)** at this time. While that option has benefits, it would more than double LTD's operating cost on that segment and may not have sufficient ridership to meet Small Starts eligibility requirements. The McVay Highway segment should be considered for future BRT service, with that decision to be triggered by Glenwood development thresholds. Additionally, the Team recommends **Operating the Gateway EmX line as an independent corridor** that starts and ends at the Springfield Station.

1.3.2.4 BRT Lane Configurations

The Project Team evaluated three options:

- Option 1: Low Exclusivity
- Option 2: Moderate Exclusivity
- Option 3: High Exclusivity

The resulting evaluation scoring is summarized below and detailed in Section 3.5 of this technical memo.

BRT Lane Configurations

Goals and Objectives	Evaluation Criteria]	Decision Element Options: Option 1: Low Exclusivity	Option 2: Moderate Exclusivity	Option 3: High Exclusivity
Goal 1:	Improve corridor transit service	7	12	15
Goal 2:	Meet current and future transit demand in a cost-effective manner	8	9	8
Goal 3:	Support economic development, revitalization and land use redevelopment opportunities for the corridor	10	17	24
Goal 4:	Enhance the safety and security of the corridor	16	17	14
Goal 5:	Enhance other modes of travel	9	12	16
SCORING TOTAL		**50**	**67**	**77**

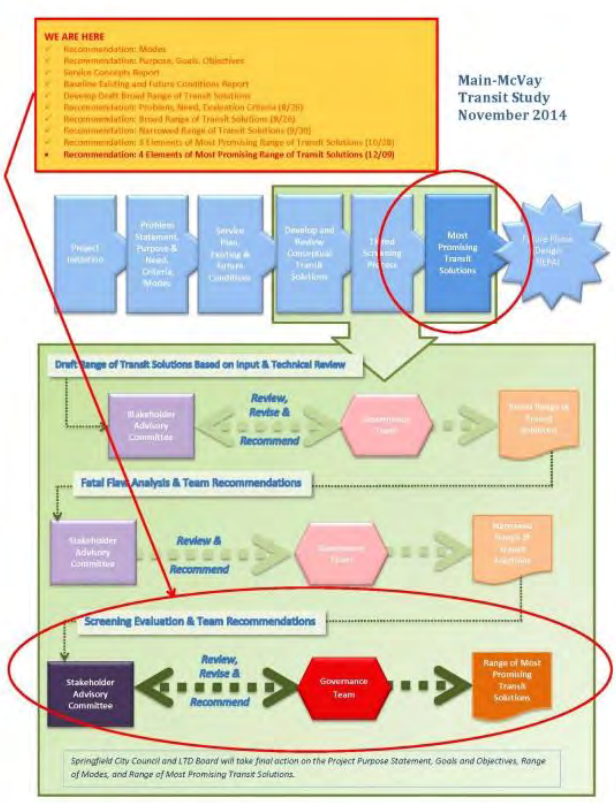
The Project Team recommends **Advancing Option 2: Moderate Exclusivity** to the package of transit solutions. Option 2 provides the greatest degree of flexibility in meeting the transit operating needs while best addressing potential impacts. Additionally, **Eliminate Option 1: Low Exclusivity and Option 3: High Exclusivity**. Both Options have less flexibility for meeting transit operating needs while addressing potential impacts. Option 1: Low Exclusivity may not provide the level of transit priority to adequately address congestion delays. Option 3: High Exclusivity has the greatest potential environmental impact and increases new impervious area adversely affecting stormwater and natural resources.

1.4 Next Steps

The findings and recommendations from this Screening-Level Evaluation will be considered by the SAC and the GT in determining the range of Most Promising Transit Solutions - those solutions that have the greatest probability of addressing Corridor transportation problems.

After the SAC has made recommendations for all seven of the Decision Elements, the Project Team will combine the elements into a package of transit solutions to be considered by the SAC and the GT in January 2015. Recommendations from the SAC and the GT will be advanced to the Springfield City Council and LTD Board in spring 2015.

See the full size version of the "We Are Here" figure in Chapter 4.



"We Are Here", November 2014

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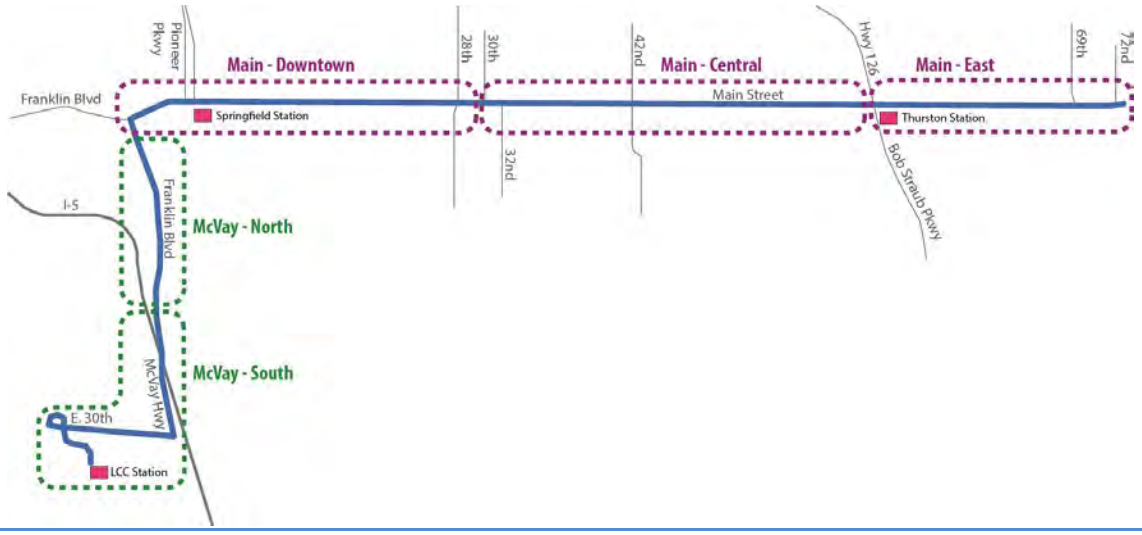
2 Tier I Screening Summary

This chapter summarizes the range of transit elements considered, elements that have been eliminated and the narrowed range of transit elements advanced from the Tier I Screening into this Tier II Screening Evaluation.

2.1 Transit Elements Considered in Tier I

On July 29, 2014, the GT and the SAC met to initiate the process of developing a range of possible transit solutions for the Main-McVay Corridor. The SAC's participation included active involvement in generating ideas for routing, station locations, and route termini. The SAC's suggestions, ideas, and identified issues and constraints that emerged from that meeting were translated into drawings of possible transit solutions, which were summarized in a Range of Possible Solutions report. To facilitate the evaluation process, the Corridor was broken into the Main Street and McVay Highway Segments, and each of those Segments was broken into sub-segments as shown in Figure 2.1-1. The drawings for each segment show the alignment and general station locations for Enhanced Bus and BRT modes.

Figure 2.1-1: Corridor Segments and Sub-Segments Used for BRT Option Descriptions



Source: Cameron-McCarthy. 2014.

The SAC met on August 26, 2014 to review the report. They agreed on some changes and recommended a modified Range of Possible Solutions to the GT. On September 4, 2014, the GT reviewed the SAC's recommended Range of Possible Transit Solutions. Based on concerns about the extent of potential impacts to businesses, the GT eliminated an option for BRT routing in downtown Springfield that would have required two-way BRT travel on Main Street. All other potential solutions were advanced into the Tier I Screening.

On September 30, 2014, the SAC recommended which transit options to advance to the Tier II Screening Evaluation. On October 9, 2014, the GT concurred with the SAC's recommended narrowed range of transit solutions to advance into the Tier II Screening (Table 2.1-1).

Table 2.1-1. Range of Tier I Transit Decision Elements Eliminated and Advanced into Tier II

Options	Advanced	Eliminated
Enhanced Bus Options		
Enhanced Bus Option 1: Main Street	●	
Enhanced Bus Option 2: McVay Highway	●	
Enhanced Bus Option 3: Main Street Express	●	
Enhanced Bus Option 4: Freeway Express		●
Enhanced Bus Option 5: Main-McVay		●
BRT Service Options		
BRT Service Option 1: Franklin-Gateway; Main-McVay		●
BRT Service Option 2: Franklin-Main; Gateway-McVay	●	
BRT Service Option 3: Franklin-Gateway; Main; McVay		●
BRT Service Option 4: Franklin-Main; Gateway; McVay	●	
BRT Lane Configurations		
Lane Configuration Option 1: Low Exclusivity	●	
Lane Configuration Option 2: Moderate Exclusivity	●	
Lane Configuration Option 3: High Exclusivity	●	
BRT Routing: Main Street East, Eastern Terminus		
East Main Option 1: Thurston Station (with connector service)	●	
East Main Option 2: Thurston High School (with connector service)	●	
East Main Option 3: Thurston Road to 69th		●
East Main Option 4: Main to 72nd		●
BRT Routing: Main Street Downtown		
Downtown Routing Option 1: Main Street / South A Couplet	●	
Downtown Routing Option 2: South A Street (eastbound and westbound)	●	
Downtown Routing Option 3: South A Street to 10th or 14th; Couplet east of 10th or 14th	●	
BRT Routing: McVay South		
South McVay Option 1: McVay Highway (west side of I-5)	●	
South McVay Option 2: Old Franklin (east side of I-5)	●	
South McVay Option 3: Haul Road (east side of I-5)		●
BRT Station Spacing		
Station Spacing Option 1: Stations routinely spaced less than 1/3 mile apart	●	
Station Spacing Option 2: Stations spaced approximately 1/3 mile apart (can vary depending on adjacent uses)	●	
Station Spacing Option 3: Stations routinely spaced more than 1/3 mile apart	●	

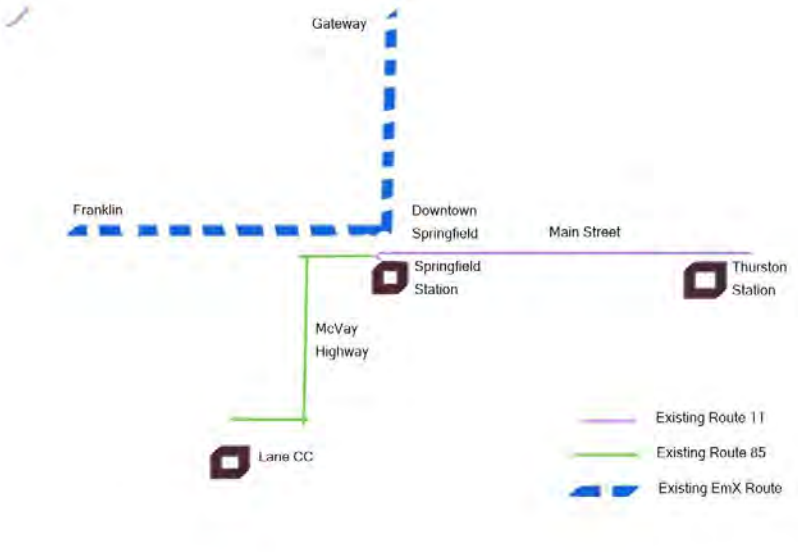
2.2 Narrowed Range of Transit Elements Advanced to Tier II

This section describes the narrowed range of Decision Elements advanced into this Tier II Evaluation.

2.2.1 Existing Service (No Change Option)

The option to continue existing bus service (shown in Figure 2.2-1), also called the No-Change Option, will be carried forward to compare all options to a future scenario without making any major changes in existing transit service. Under this option, there is no change to existing service connections, lane configurations, routing, termini, or station locations. Future bus service changes would be consistent with the service and operational adjustments typically made by LTD to maintain service quality.

Figure 2.2-1: Existing Bus Service on the Main-McVay Corridor



Source: Cameron McCarthy. 2014.

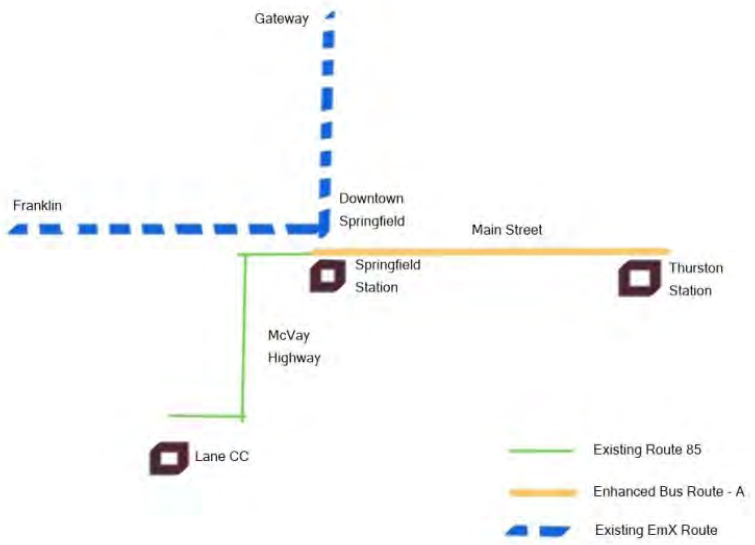
2.2.2 Enhanced Bus

Enhanced Bus options typically include transit signal priority (TSP), improved stations, possible queue-jumps at congested intersections, and improved operations, and can include improvements to the frequency of service on the Corridor. The service options for Enhanced Bus described below are not mutually exclusive. These can be applied in various combinations. For example, it is possible to implement Enhanced Bus on both the Main Street and McVay Highway segments.

2.2.2.1 Service Options

Enhanced Bus Option 1: Main Street: Replace #11 Thurston with Enhanced Bus Route; #85 LCC/Springfield and other routes would be unchanged (Figure 2.2-2).

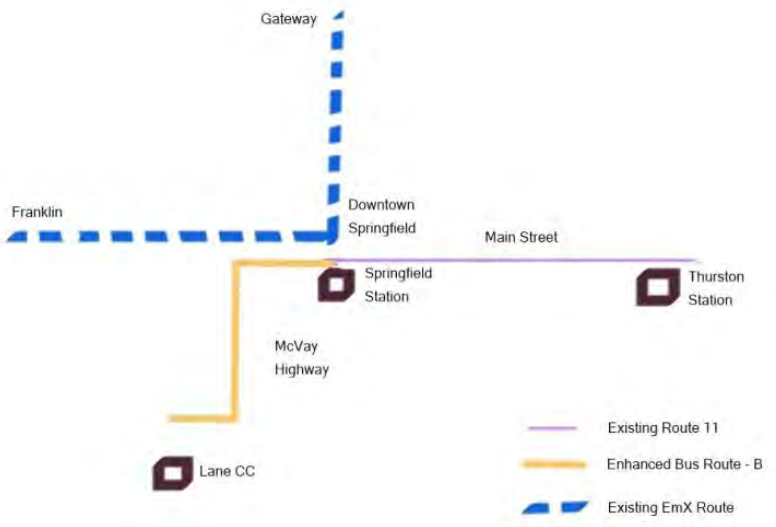
Figure 2.2-2: Enhanced Bus Option 1 – Main Street



Source: Cameron McCarthy. 2014.

Enhanced Bus Option 2: McVay Highway: Replace #85 LCC / Springfield with Enhanced Bus Route; #11 Thurston and other routes would be unchanged (Figure 2.2-3).

Figure 2.2-3: Enhanced Bus Option 2 – McVay Highway

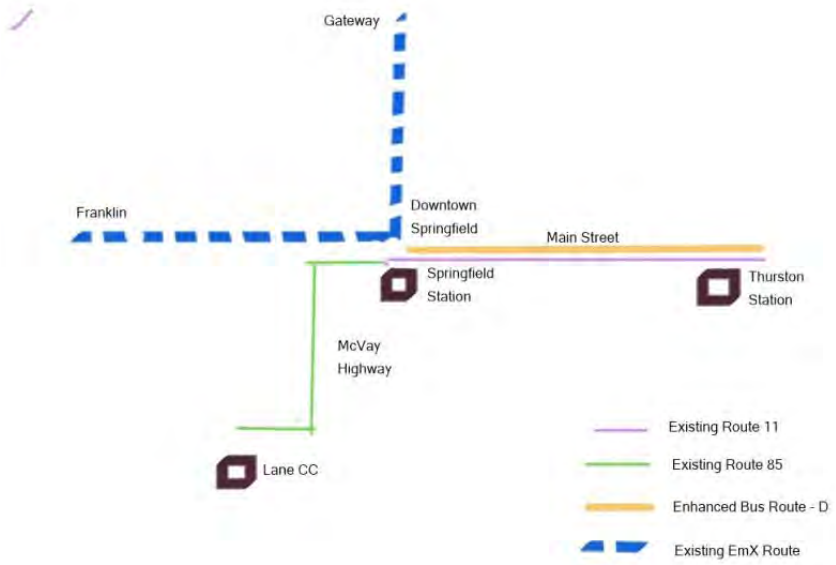


Source: Cameron McCarthy. 2014.

Enhanced Bus Option 3: Main Street Express: Add express service along the Main Street segment to supplement the #11 Thurston route (Figure 2.2-4). Frequency on the #11 may be reduced somewhat

since the express route would assume some of its ridership load. Service on the #85 LCC / Springfield and other routes would be unchanged.

Figure 2.2-4: Enhanced Bus Option 3 – Main Street Express



Source: Cameron McCarthy. 2014.

2.2.2.2 Lane Configurations

Enhanced bus service is in mixed traffic, though queue-jump lanes may be used at congested intersections. A queue-jump lane is a separate transit lane at an intersection that allows the transit vehicle to bypass stopped vehicles and is often combined with special traffic signaling that prioritizes transit. Possible locations for queue-jump lanes are at McVay Highway/Franklin, Main/42nd Street, and Main/Highway 126.

2.2.2.3 Routing/Termini/Station Options

Table 2.2-1 summarizes routing (alignment), termini, and station locations for each of the Enhanced Bus options.

Table 2.2-1: Enhanced Bus Options: Routing / Termini / Stations

Option	Description	Routing	Route Termini	General Station Locations
1. Main Street Enhanced Bus	This option would replace the existing #11 Thurston route with an Enhanced Bus route, using the same alignment and stops.	Existing #11 routing	Springfield Station – 69th & Main (option to extend east of 69th)	Existing Bus Stops
2. McVay Highway Enhanced Bus	This option would replace the existing #85 LCC / Springfield route with an Enhanced Bus route, using the same alignment and stops.	Existing #85 routing	Springfield Station – LCC	Existing Bus Stops
3. Main Street Express	This option would add an express bus on the Main Street segment to operate in combination with continued service on the #11 Thurston route. The express bus would service limited stops, while the #11 Thurston would continue to serve all bus stops along the Corridor.	Main Street; Couplet in downtown Springfield	Springfield Station – Thurston Station	Springfield Station 10th Street 14th Street 21st Street 30th Street 42nd Street 48th Street Thurston Station Option for fewer stops

2.2.3 BRT

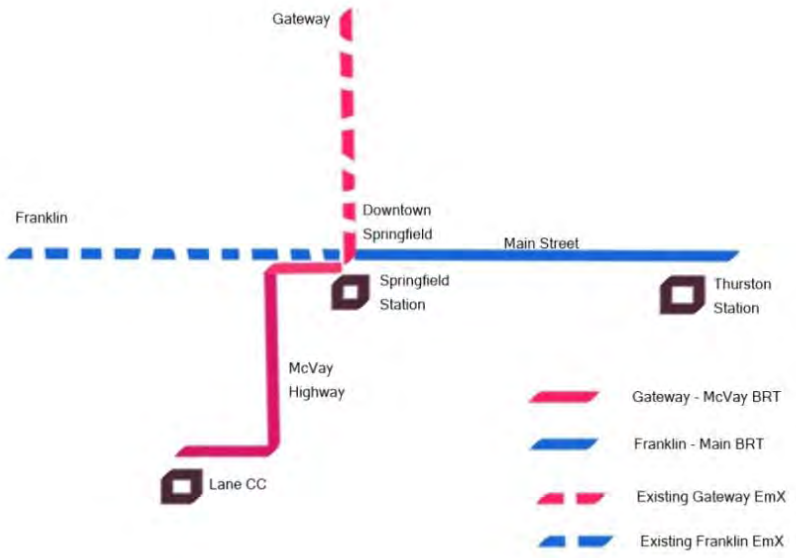
There are several BRT options within the corridor. These cover a wide range of service options, lane configurations, routing, termini, and station options.

2.2.3.1 Service Options

BRT "Service Options" refers to the way in which segments of BRT service are linked. Possible BRT service in the Main-McVay Corridor can be linked in several ways with existing BRT service on the Franklin and Gateway segments.

BRT Service Option 1: Franklin-Main and Gateway-McVay: This option extends the existing BRT service from the Franklin EmX line east on Main Street, and extends BRT from the existing Gateway EmX line south on McVay Highway to LCC (Figure 2.2-5).

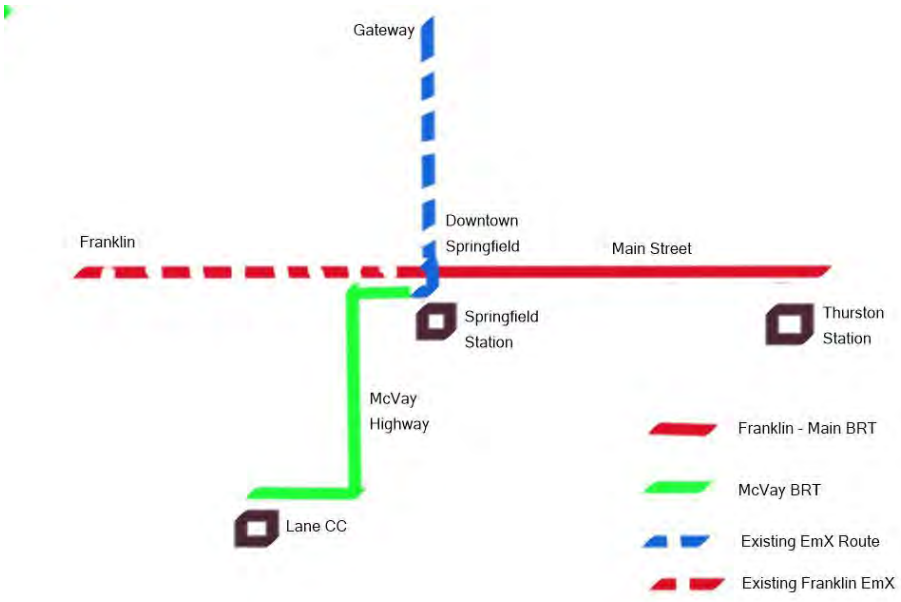
Figure 2.2-5: BRT Option 1 – Franklin-Gateway and Gateway-McVay



Source: Cameron McCarthy. 2014.

BRT Service Option 2: Franklin-Main BRT; Gateway BRT; McVay Highway BRT: This option extends the existing BRT service from the Franklin EmX line east on Main Street and creates a McVay Highway BRT line (Figure 2.2-6). The existing BRT service on the Gateway EmX line would be severed from the BRT service on the Franklin EmX line and operate independently with a terminus at the Springfield Station.

Figure 2.2-6: BRT Option 2 - Franklin-Main, Gateway and McVay



Source: Cameron McCarthy. 2014.

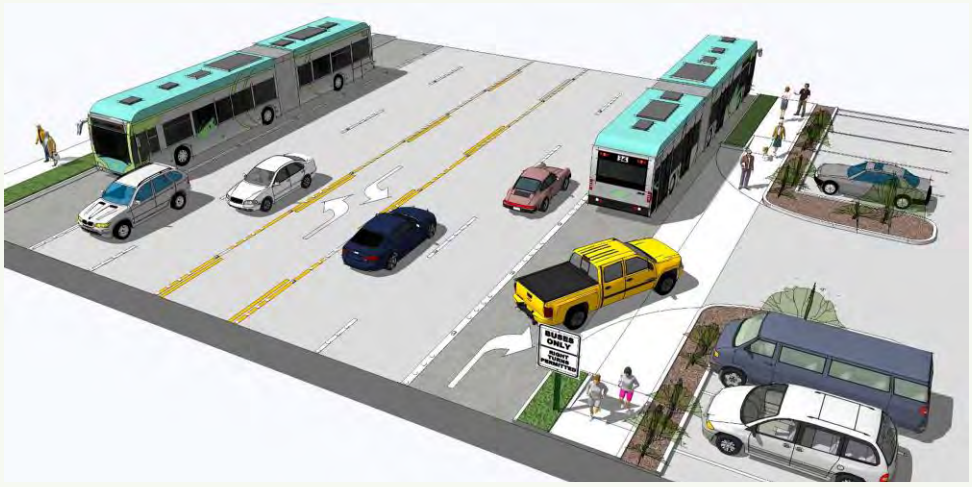
2.2.3.2 Lane Configurations

There are many lane configuration options for BRT, ranging from exclusive transit lanes to semi-exclusive transit lanes (such as Business Access Transit lanes (also called BAT lanes), which are shared with vehicles making a turn) to mixed traffic (*see call-out boxes on next two pages*). A detailed analysis of the most appropriate lane configuration for a particular street section is beyond the scope of this Study. This Study evaluates three basic BRT lane configuration options:

- **Lane Configuration Option 1: Low Exclusivity**: Under this option, a majority of the BRT line would operate in mixed traffic. Exclusive or semi-exclusive transit lanes would only be applied in the following situations:
    - Intersection that are currently or projected to be severely congested and cause a high-level of transit delay; and
    - Where there are opportunities for transit lanes that can be installed with minimal adverse impact to businesses, property owners, residents, or other modes of travel.
- **Lane Configuration Option 2: Moderate Exclusivity**: This option would result in a BRT line that was a mixture of mixed traffic and exclusive or semi-exclusive transit lanes. Exclusive or semi-exclusive transit lanes would be applied in the following situations:
    - Intersection that are currently or projected to be severely congested and cause a high-level of transit delay;
    - Where there are opportunities for transit lanes that can be installed with minimal adverse impact to businesses, property owners, residents, or other modes of travel; and
    - Locations that have available right-of-way or where roadway expansion would have minimal impact on existing business, or residents.

BAT (Business Access and Transit) Lane – Semi-Exclusive Lane

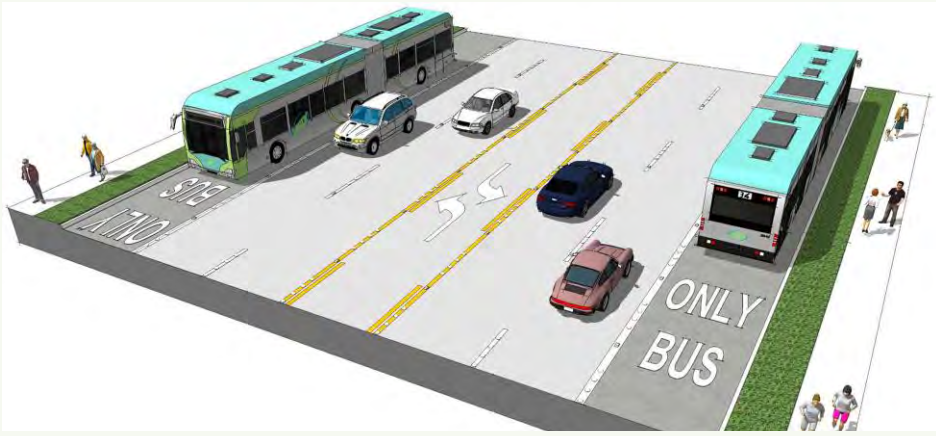
In general, a BAT lane is a concrete lane, separated from general-purpose lanes by a paint stripe and signage. A BAT lane provides BRT priority operations, but general-purpose traffic is allowed to travel within the lane to make a turn into or out of a driveway or at an intersecting street.



- **Lane Configuration Option 3: High Exclusivity**: This option would result in a BRT line with a large majority of the corridor in exclusive or semi-exclusive transit lanes. Transit lanes would be implemented along the corridor except in the following situations:
    - Where the addition of transit lanes would result in the direct impact on a building and the displacement of an existing business or residence;
    - Locations where the addition of a transit lane would have a very large cost, such as widening of a bridge.

BRT Only Lane – Exclusive Lane

In general, a BRT-only lane is a concrete lane, separated from general-purpose lanes by a paint stripe and signage. Operationally, the BRT-only lane is for the exclusive use of BRT vehicles. In general, right- or left-turning or crossing general-purpose traffic is allowed to cross the BRT-only lane at intersections and driveway entrances.



BRT Transitway – Exclusive Lane

A BRT Transitway is made of concrete lanes or concrete tracks with a grass-strip divider that is used exclusively by BRT vehicles. In general, the BRT Transitway is separated from adjacent general-purpose lanes by a concrete curb and/or median and the Transitway is traversed by general-purpose vehicles only at signalized intersections.

2.2.3.3 Routing/Termini/Station Options

Table 2.2-2 summarizes routing (alignment), termini, and station locations for each of the BRT options. General station locations are being coordinated with the Main Street Visioning Project, including with identified Activity Node areas.

Table 2.2-2: BRT Options: Routing/Termini/Stations

Segment	Sub-Segment	Routing	Route Termini	General Station Locations	Notes
Main Street	East (East of Bob Straub Pkwy)	Main St	Thurston Station	Thurston Station	Includes local connector service east of Thurston Station
		Main St to 58th	Thurston High School	Thurston Station Thurston High School	Layover location to be determined. Includes local connector service east of Thurston Station.
	Central (30th – Bob Straub Pkwy)	Main St	NA	30th 35th 39th 42nd 44th 48th 50th 53rd	
	Downtown (Springfield Transit Station – 30th)	South A / Main Couplet	NA	Springfield Station 10th 14th 21st	
		South A (both directions) (contraflow lane)	NA	Springfield Station 10th 14th 21st	Requires contraflow lane on South A Street
		Couplet East of 10th, South A West of 10th	NA	Springfield Station 10th 14th 21st	Requires contraflow lane on South A Street west of 10th Street
McVay Highway	North (Franklin to UGB)	McVay Highway	NA	Franklin (roundabout) 19th Nugget South Glenwood	Station locations consistent with Glenwood Refinement Plan
	South (UGB to LCC)	McVay Hwy (West side of I-5)	LCC	Bloomberg Eldon Schafer LCC	
		Old Franklin (East side of I-5)	LCC	Seavey Loop Area Eldon Schafer LCC	

Note: Layover locations are needed at the ends of routes to allow for the bus to adjust to the scheduled departure time and to provide for operator breaks.

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3 Tier II Screening Evaluation

This chapter summarizes the findings of the screening which gauges – at a high level – how well the proposed transit solutions might address the Study's Purpose, Need, Goals and Objectives, as measured against the Evaluation Criteria that were established for each Objective.

Section 3.1 provides a brief overview of the Tier II screening process. Sections 3.2 through 3.5 detail the screening assessments for the remaining four Decision Elements: BRT Routing -McVay South, Enhanced Bus Options, BRT Service Options, and BRT Lane Configurations.

3.1 Screening and Rating Options

3.1.1 Tier II Screening Approach

For the Tier II Screening, the Decision Elements were screened in an order that facilitates decision-making. That is, BRT Station Spacing, BRT Routing: Main Street East and Eastern Terminus, and BRT Routing: Main Street Downtown were considered first because those decisions affected the evaluations of the remaining four Decision Elements.

The four remaining Decision Elements considered in this Tier II Screening Evaluation (Part B – December 2014) are:

<u>BRT Routing: McVay South</u>

- McVay Highway (west side of I-5)
- Old Franklin (east side of I-5)

<u>Enhanced Bus Options</u>

- Main Street
- McVay Highway
- Main Street Express

<u>BRT Service Options</u>

- Franklin-Main; Gateway-McVay
- Franklin- Main; Gateway; McVay

<u>BRT Lane Configurations</u>

- Low Exclusivity
- Moderate Exclusivity
- High Exclusivity

Stakeholder Advisory Committee Meetings for Recommendations

Tier II Evaluation Part A – October 28, 2014

- BRT Station Spacing
- BRT Routing: Main Street East, Eastern Terminus
- BRT Routing: Main Street Downtown

Tier II Evaluation Part B – December 9, 2014

- BRT Routing: McVay South
- Enhanced Bus Options
- BRT Service Options
- BRT Lane Configurations

Range of Most Promising Solutions – January 27, 2015

- No Action
- Main Street Segment
- McVay Segment

3.1.2 Evaluation Criteria Screening

The Project Team screened each of the options against the 47 Evaluation Criteria to determine – at a high level – how effectively the option would address the Study's PNGO. Whenever feasible, quantitative values were calculated, such as ridership forecasts, population density, costs, and cost-effectiveness. However, some values are qualitative in nature, such as the capability of the transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans.

Based on the quantitative or qualitative assessment for each criterion, the options were assigned a relative rating on a scale of -3 to +3, with -3 indicating that the option does not effectively meet the criterion or has the potential of having an adverse effect compared to the other options, and +3 indicating that the option most effectively meets the criterion or has the potential of having a beneficial effect compared to the other options. A rating of 0 indicates that the option is neutral in terms of effectively meeting the criterion relative to the other options or not anticipated to affect a particular objective.

-3	-2	-1	0	+1	+2	+3
Least Effective / Potential Adverse Effects			Neutral / No Anticipated Effects			Most Effective / Potential Beneficial Effects

3.1.3 Forecasting

3.1.3.1 Land Use

Regional travel demand modeling relies on land use forecasts. These forecasts are prepared using a land use allocation model (with data that includes land supply and capacity information) developed by the Lane Council of Governments (LCOG). Given residential and employment growth targets, the model allocates growth to developable locations guided by the adopted comprehensive plan, density restrictions, and other parameters. These models can be applied to large areas, such as Urban Growth Boundaries (UGBs), for reasonably long term time periods where the up and down cycles of development are smoothed over time. A more detailed discussion of the land use forecasting model is included in Attachment B.

3.1.3.2 Ridership

Travel demand forecasting uses data gathered from multiple sources to estimate travel patterns. Surveys of households in our region are used to describe the travel choices made by members of the households. Data from these analyses formulate the model and, when set up with parameters describing future costs and other variables, produces projections of future behavior.

LCOG maintains and applies its own regional travel demand forecasting model, used for the region's various planning projects. The area covered includes the Eugene, Springfield and Coburg UGBs and a small area of surrounding rural land. The model was developed by LCOG following the Guidelines and Procedures Manual of the ODOT Transportation Planning Analysis Unit. The structure and assumptions are consistent with nearly all Oregon MPO 4-step models.

For a more complete description of the model and methodology, please see Attachment C. More detailed reports documenting the model methodology are available from LCOG.[1]

3.2 BRT Routing: McVay South

Two McVay Highway South Routing options were advanced to the Tier II screening:

- South McVay Option 1: McVay Highway (west side of Interstate 5)
- South McVay Option 2: Old Franklin (east side of Interstate 5)

3.2.1 Screening Evaluation

The findings for screening BRT McVay South Routing are summarized in Table 3.2-1. Data associated with the findings are included in the tables in Attachments D and E.

Table 3.2-1. Screening Summary BRT Routing: McVay South

BRT Routing: McVay South

Goals and Objectives	Evaluation Criteria	Decision Element Options: Option 1: McVay Highway (west side of I-5)	Decision Element Options: Option 2: Old Franklin (east side of I-5)
Goal 1: Improve corridor transit service			
Objective 1.1: Improve transit travel time	A. Round trip transit pm peak travel time between select origins and destinations	0	0
Objective 1.2: Improve transit service reliability	A. On-time performance (no more than 4 minutes late) of transit service	0	1
Objective 1.3: Provide convenient transit connections that minimizes the need to transfer	A. Number of transfers required between heavily used origin-destination pairs	0	0
Objective 1.4: Increase transit ridership and mode share in the corridor	A. Average weekday boardings on Corridor routes	0	0
	B. Transit mode share along the corridor	0	0
Objective 1.5: Improve access of other modes such as walking, bicycling, and auto	A. Population with ½ mile of transit stop	0	0
	B. Bicycle capacity at stops,	0	0

[1] More detailed reports available at LCOG include the *LCOG Travel Demand Forecasting Model Documentation Report 2007* and the *LCOG Trip-Based Demand Model Validation Report (2004 and 2007).*

BRT Routing: McVay South			
		Decision Element Options	
Goals and Objectives	**Evaluation Criteria**	**Option 1: McVay Highway (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**
(park and ride) to transit	stations, and on the bus		
	C. Number of park and ride spaces with direct transit access to major destinations	0	0
	D. Assessment of accessibility by persons with mobility challenges	1	1
Objective 1.6: Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status	A. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	1	1
	Scoring Subtotal Goal 1	**2**	**3**
Goal 2: Meet current and future transit demand in a cost-effective manner			
Objective 2.1: Control the increase in transit operating cost to serve the corridor	A. Cost per trip	0	0
	B. Impact on LTD operating and maintenance costs	0	0
	C. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	0	0
	D. Cost to local taxpayers	0	0
Objective 2.2: Increase transit capacity to meet current and projected ridership demand	A. Capacity of transit service relative to the current and projected ridership	0	0
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	A. Benefit/cost assessment of planned improvements	0	0
Objective 2.4: Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	A. Results of screening-level assessment of environmental impacts of transit solutions	1	-1
	Scoring Subtotal Goal 2	**1**	**-1**
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor			
Objective 3.1: Support development and redevelopment as planned in other adopted documents	A. Support for the overall BRT System Plan	2	2
	B. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	2	2

BRT Routing: McVay South			
		Decision Element Options	
Goals and Objectives	Evaluation Criteria	Option 1: McVay Highway (west side of I-5)	Option 2: Old Franklin (east side of I-5)
	C. Amount of vacant and underutilized land within ½ mile of stops/stations	2	1
	D. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	-1	1
	E. Local jobs created by project construction	0	0
	F. Percentage of current and planned population within ½ mile of FTN stop	1	1
	G. Percentage of current and planned employment within ½ mile of FTN stop	1	2
Objective 3.2: Enhance the aesthetics of the corridor to improve economic activity	A. Potential impact to street trees, landscaping	1	-1
	B. Number of transit-related visual elements identified in adopted plans that would be implemented by transit solutions	0	0
	C. Potential impacts to the natural environment	0	0
	D. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	1	0
Objective 3.3: Coordinate transit improvements with other Main Street projects	A. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	0	0
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	0	0
Objective 3.4: Coordinate transit improvements with	A. Capability of transit improvement to coordinate	1	1

BRT Routing: McVay South			
		Decision Element Options	
Goals and Objectives	**Evaluation Criteria**	**Option 1: McVay Highway (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**
other Franklin Boulevard / McVay Highway projects	with other Franklin Boulevard / McVay Highway projects identified in adopted plans		
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	2	1
Objective 3.5: Minimize adverse impacts to existing businesses and industry	A. Impacts to businesses along the Corridor measured in number and total acres of properties acquired, parking displacements, and access impacts.	-1	0
	B. Impact on freight and delivery operations for Corridor businesses	-1	0
	Scoring Subtotal Goal 3	**10**	**10**
Goal 4: Enhance the safety and security of the corridor			
Objective 4.1: Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	A. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	1	1
	B. General assessment of safety for persons with mobility challenges	1	1
	C. General assessment of potential to reduce the number of pedestrian / vehicle collisions	1	1
	D. General assessment of potential to reduce the number of bicycle / vehicle collisions	0	0
Objective 4.2: Enhance the security of transit users and of the corridor as a whole	A. Amount of added street lighting	1	1
	B. Amount of added lighting at / near transit stops	2	2
	C. Extent and character of stop and station improvements	2	2
	Scoring Subtotal Goal 4	**8**	**8**
Goal 5: Enhance other modes of travel			
Objective 5.1: Improve	A. Impact on current and future	0	0

BRT Routing: McVay South			
		Decision Element Options	
Goals and Objectives	Evaluation Criteria	Option 1: McVay Highway (west side of I-5)	Option 2: Old Franklin (east side of I-5)
transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	year intersection Level of Service (LOS)		
	B. Impact on current and future year PM peak hour auto / truck travel times	0	0
Objective 5.2: Improve bicycle and pedestrians connections along the corridor and to and from transit stops	A. General assessment of the interface with pedestrians and bicyclists	1	1
	B. Length of new or improved sidewalk in stop and station areas	1	1
	C. Length of new or improved bike lanes in stop and station areas	1	2
	D. Number of bicycle treatments in stop and station areas	1	1
	Scoring Subtotal Goal 5	**4**	**5**
SCORING TOTAL		**25**	**25**

3.2.2 Analysis Assumptions

The following assumptions were used in this screening evaluation:

- Mixed traffic (low exclusivity) BRT assumed for both routing options
- Travel times based on estimated future year 2035 travel conditions
- Each passenger stop takes approximately 36 seconds, which includes 18 seconds of dwell time (when the bus is stopped at the station) and 18 seconds for acceleration and deceleration
- BRT Running speed was assumed to be 5 mph lower than posted speed to account for roadway friction (e.g. driveways) along most of the alignment
- Signalized intersection delay was obtained primarily from 2035 Springfield TSP analysis, or estimated where not available
- Tree, rare plant habitat and wetland impact potential is greatest along Old Franklin
- There is a potential for roadway improvements along McVay between 19th Avenue and Nugget Way that could move the alignment closer to the manufactured homes on either side of the roadway
- Scoring is based on service option and does not assume lane exclusivity

3.2.3 Key Findings

The key findings for this screening evaluation are:

- No significant traffic and transit related differences between east and west routing

- The McVay route (Option 1) serves slightly more development than Old Franklin (Option 2), though the differences are minor
- The McVay route (Option 1) is subject to greater traffic congestion, particularly approaching 30th Avenue in the morning periods when LCC is in session
- More natural resources adjacent to Old Franklin (Option 2)
- Old Franklin (Option 2) could provide greater access to proposed park plans along riverfront
- The Key Findings for noise include:
    - There is no predicted change in noise levels along the Main Street section of the corridor, and no noise impacts are predicted
    - There is a potential for transit related noise impacts in the north end of the corridor, at the manufactured home parks, south of 19th Avenue
    - There is no predicted change in noise levels along the section of the corridor south of Nugget Way, and no noise impacts are predicted
- The air quality is predicted to meet the National or State Ambient Air Quality Standards and no air quality impacts are projected

3.2.4 Project Team Recommendations

The Project Team recommends:

- **Advance both the McVay and Old Franklin Options** until lane exclusivity decisions are made and the package of transit solutions is developed.
    - Although there are minor differences between the two options, overall, there is not enough difference to make one stand out over the other.
    - Further review of the package of transit solutions may reveal advantages of one option or the other.
    - It is possible that the technical differences between the two options may continue to be insignificant and that choosing one option over the other may be based on other community values.

3.3 Enhanced Bus Options

Enhanced Bus options typically include transit signal priority (TSP), improved stations, queue-jumps at congested intersections, improved operations, and can include improvements to the frequency of service on the Corridor. The service options for Enhanced Bus described below are not mutually exclusive. These can be applied in various combinations. For example, it is possible to implement a Main Street Enhanced Bus in combination with the McVay Highway Enhanced Bus.

Three Enhanced Bus options have been carried forward to the Tier II analysis:

- Option 1: Main Street
- Option 2: McVay Highway
- Option 3: Main Street Express

3.3.1 Option 1: Main Street

Main Street Enhanced Bus: Replace #11 Thurston with Enhanced Bus Route; #85 LCC/Springfield and other routes would be unchanged (Figure 2.2-3). A new route would serve neighborhoods east of the Thurston Station.

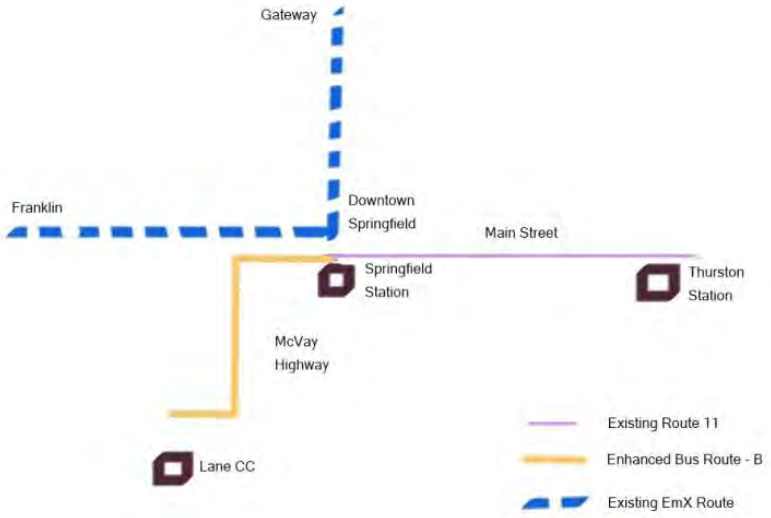
Figure 3.3-1. Enhanced Bus Option 1: Main Street Enhanced Bus

Source: Cameron McCarthy. 2014.

3.3.2 Option 2: McVay Highway

McVay Highway Enhanced Bus: Replace Route #85 LCC/Springfield with Enhanced Bus Route; Route #11 Thurston would operate between the Springfield Station and the Thurston Station. A new route would serve neighborhoods east of the Thurston Station.

Figure 3.3-2. Enhanced Bus Option 2: McVay Highway Enhanced Bus

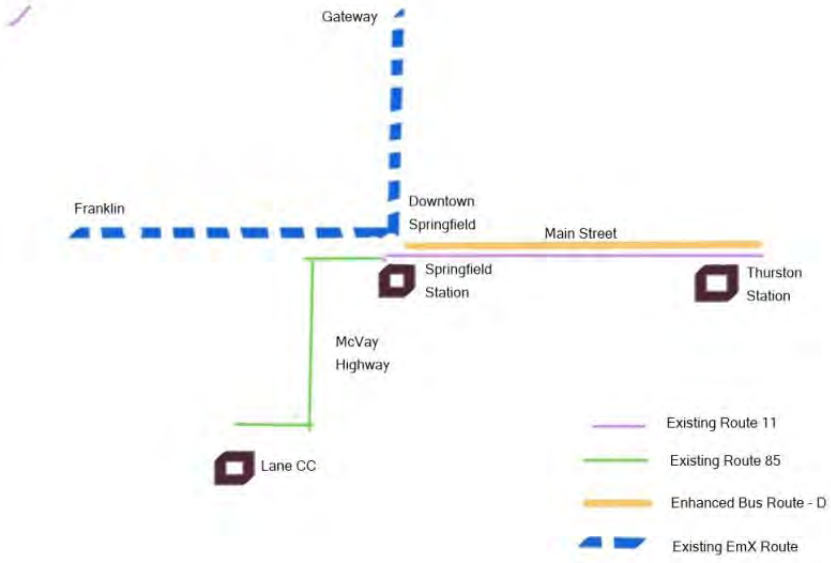


Source: Cameron McCarthy. 2014.

3.3.3 Option 3: Main Street Express

Main Street Express: Add express service along the Main Street segment to supplement the #11 Thurston route (Figure 2.2-5). Frequency on the #11 may be reduced somewhat since the express route would assume some of its ridership load. Service on the #85 LCC/Springfield and other routes would be unchanged. #11 Thurston would operate between the Springfield Station and the Thurston Station. A new route would serve neighborhoods east of the Thurston Station.

Figure 3.3-3. Enhanced Bus Option 3: Main Street Express



Source: Cameron McCarthy. 2014.

3.3.4 Screening Evaluation

The findings for screening Enhanced Bus options are summarized in Table 3.3-1. Data associated with the findings are included in the tables in Attachments D and E.

Table 3.3-1. Screening Summary Enhanced Bus Options

Enhanced Bus Options				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria	Option 1 Main Street	Option 2 McVay Highway	Option 3 Main Street Express
Goal 1: Improve corridor transit service				
Objective 1.1: Improve transit travel time	A. Round trip transit pm peak travel time between select origins and destinations	3	1	2
Objective 1.2: Improve transit service reliability	A. On-time performance (no more than 4 minutes late) of transit service	3	1	2
Objective 1.3: Provide convenient transit connections that minimizes the need to transfer	A. Number of transfers required between heavily used origin-destination pairs	0	0	0
Objective 1.4: Increase transit ridership and mode share in the corridor	A. Average weekday boardings on Corridor routes	1	0	1
	B. Transit mode share along the corridor	1	0	1
Objective 1.5: Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	A. Population within ½ mile of transit stop	0	0	0
	B. Bicycle capacity at stops, stations, and on the bus	0	0	0
	C. Number of park and ride spaces with direct transit access to major destinations	0	0	0
	D. Assessment of accessibility by persons with mobility challenges	0	0	1
Objective 1.6: Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status	A. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	0	0	0
	Scoring Subtotal Goal 1	**8**	**2**	**7**
Goal 2: Meet current and future transit demand in a cost-effective manner				
Objective 2.1: Control the increase in transit operating cost to serve the corridor	A. Cost per trip	1	1	-1
	B. Impact on LTD operating and maintenance costs	1	1	-1
	C. Meet or exceed FTA's Small Starts requirements for cost-	-3	-3	-3

Enhanced Bus Options				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria	Option 1 Main Street	Option 2 McVay Highway	Option 3 Main Street Express
	effectiveness			
	D. Cost to local taxpayers	0	-1	-3
Objective 2.2: Increase transit capacity to meet current and projected ridership demand	A. Capacity of transit service relative to the current and projected ridership	0	0	2
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	A. Benefit/cost assessment of planned improvements	0	0	-2
Objective 2.4: Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	A. Results of screening-level assessment of environmental impacts of transit solutions	0	0	0
	Scoring Subtotal Goal 2	**-1**	**-2**	**-8**
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor				
Objective 3.1: Support development and redevelopment as planned in other adopted documents	A. Support for the overall BRT System Plan	-3	-3	-3
	B. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	1	1	1
	C. Amount of vacant and underutilized land within ½ miles of stops/stations	0	0	0
	D. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	0	0	0
	E. Local jobs created by project construction	0	0	0
	F. Percentage of current and planned population within ½ mile of FTN stop	0	0	0
	G. Percentage of current and planned employment within ½ mile of FTN stop	0	0	0
Objective 3.2: Enhance the aesthetics of the corridor to improve economic activity	A. Potential impact to street trees, landscaping	0	0	0
	B. Number of transit-related visual elements identified in adopted plans that would be implemented by transit	1	0	1

Enhanced Bus Options				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria	Option 1 Main Street	Option 2 McVay Highway	Option 3 Main Street Express
	solutions			
	C. Potential impacts to the natural environment	0	0	0
	D. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	0	0	0
Objective 3.3: Coordinate transit improvements with other Main Street projects	A. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	1	0	1
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	1	0	1
Objective 3.4: Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	A. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	0	1	0
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	0	1	0
Objective 3.5: Minimize adverse impacts to existing businesses and industry	A. Impacts to businesses along the Corridor measured in number and total acres of properties acquired, parking displacements, and access impacts.	0	0	0
	B. Impact on freight and delivery operations for Corridor businesses	0	0	0
	Scoring Subtotal Goal 3	**1**	**0**	**1**
Goal 4: Enhance the safety and security of the corridor				
Objective 4.1: Improve the safety of pedestrians and bicyclists accessing transit and crossing Main	A. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	0	0	0

Enhanced Bus Options				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria	Option 1 Main Street	Option 2 McVay Highway	Option 3 Main Street Express
Street	B. General assessment of safety for persons with mobility challenges	1	2	1
	C. General assessment of potential to reduce the number of pedestrian / vehicle collisions	0	0	0
	D. General assessment of potential to reduce the number of bicycle / vehicle collisions	0	0	0
Objective 4.2: Enhance the security of transit users and of the corridor as a whole	A. Amount of added street lighting	0	0	0
	B. Amount of added lighting at / near transit stops	2	3	1
	C. Extent and character of stop and station improvements	2	2	1
	Scoring Subtotal Goal 4	**5**	**7**	**3**
Goal 5: Enhance other modes of travel				
Objective 5.1: Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	A. Impact on current and future year intersection Level of Service (LOS)	0	0	0
	B. Impact on current and future year PM peak hour auto / truck travel times	0	0	0
Objective 5.2: Improve bicycle and pedestrians connections along the corridor and to and from transit stops	A. General assessment of the interface with pedestrians and bicyclists	0	0	0
	B. Length of new or improved sidewalk in stop and station areas	2	3	1
	C. Length of new or improved bike lanes in stop and station areas	0	0	0
	D. Number of bicycle treatments in stop and station areas	2	2	1
	Scoring Subtotal Goal 5	**4**	**5**	**2**
SCORING TOTALS		**17**	**12**	**5**

3.3.5 Analysis Assumptions

The following assumptions were used in this screening evaluation:

- Enhanced Bus Options do not require additional right-of-way, except at some potential queue-jump locations
- Stop locations for Enhanced Bus are the same as current stop locations

- The Main Street Enhanced Bus and McVay Enhanced bus are assumed to operate with the same frequency as existing service on the corresponding segment
- The Main Street Express option was investigated both with an option to maintain local service as well as an option that reduces local service from the current 10-15 minutes on weekday daytimes to 20 minutes on weekday daytimes
- Enhanced service includes transit signal priority (TSP) and potentially up to one queue jump per direction per segment
- Assumed mixed-flow operations throughout, except where queue jump exists
- Assumed similar dwell times for all bus service options (regular, enhanced and express)
- Enhanced service includes limited sidewalk infill and stop amenities
- Express service does not include any additional pedestrian or stop amenities
- Proposed locations for queue jump lanes will not change
- All improvements will be made to existing ROW and alignments
- Tree impacts may occur, but removal will comply with Migratory Bird Treaty Act (MBTA), and tree removal will be mitigated
- Rare plant habitat has been identified and avoided
- New impervious surface has been treated prior to discharge
- Wetlands, Waters of the State/United States have been identified and avoided
- Assumptions for the noise analysis include the use of existing roadways along McVay Highway with no widening or Bus specific lanes south of 19th Street along the segment with the manufactured home parks

3.3.6 Key Findings

The key findings for this screening evaluation are:

Ridership

- Main Street segment ridership increases approximately 6 percent with the Main Street Enhanced Bus (Year 2035 model projections)
- McVay Highway ridership increases approximately 2 percent with McVay Highway Enhanced Bus (Year 2035 model projections)
- Main Street segment ridership increases approximately 3 percent with the Main Street Express if existing local service is retained. There is a 2 percent decrease in ridership if the Main Street Express is implemented with a reduction of local service frequency from 10-15 minutes to 20 minutes (Year 2035 model projections)

Cost

- The Main Street Express adds operating cost, with the extent of the additional cost dependent on the frequency of the local service

- The Main Street Enhanced Bus and McVay Enhanced bus may reduce corridor operating cost due to faster travel times

Operations

- Enhanced service provides the most potential benefit to Main Street transit service due to the number of traffic signals that can benefit from transit signal priority and expected future congestion levels
- The proposed queue-jump lane configurations are located at intersections with few or no historic resources (Main/42nd and Main/Highway 126 have no identified historic resources; McVay Highway/Franklin intersection has only one identified historic resource, the Southern Pacific Railroad Line)

Environmental

- Any improvements are anticipated to have no effect on historic resources
- No significant biological, fish and wetland related differences in any measures between transit solutions
- Main Street options may impact more trees at improved stop areas, but offer some aesthetic corridor improvements
- The McVay Highway route has limited natural resources
- There are no transit related noise impacts predicted for the enhanced bus options
- The air quality is predicted to meet the National or State Ambient Air Quality Standards and no air quality impacts are projected

3.3.7 Project Team Recommendations

The Project Team recommends:

- **Advance Enhanced Bus Option 1: Main Street and Option 2: McVay Highway** into the package of transit solutions. Both options are predicted to have some increase in ridership by 2035 and some reduction in operating costs with few adverse impacts on the natural or built environment.
- **Eliminate Option 3: Main Street Express** because it will increase operating costs without a commensurate gain in ridership.

3.4 BRT Service Options

Evaluation of BRT Service Options is based on determining the most important linkages between BRT segments. Reducing the amount of transfers by linking common trip origins and destinations helps to create a BRT network that is intuitive and easy for riders and potential riders to understand. Another critical factor is to link segments that have similar operating requirements (such as frequency and span of service) so that one leg of the service is not either over-served (which results in an inefficient use of resources) or under-served (which could create ridership overloads).

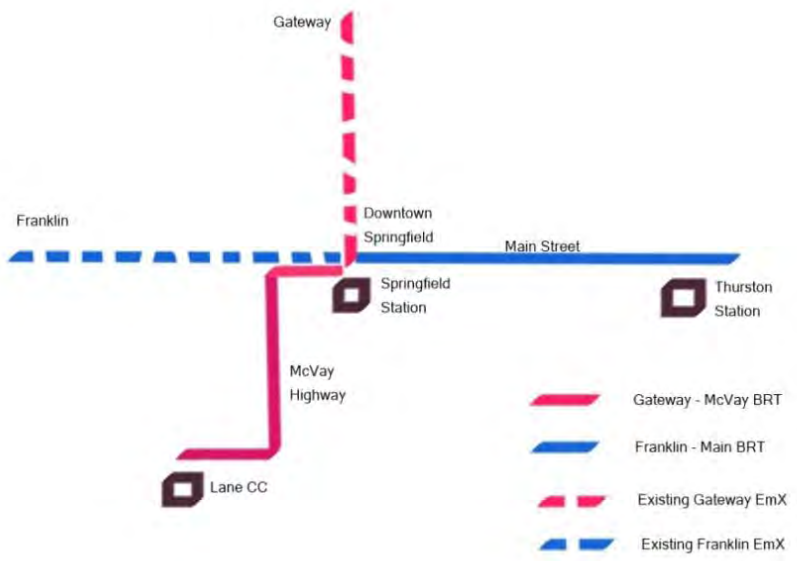
Two BRT service options were carried forward from the Tier I screening process. This decision was based on the preference for direct east-west and north-south BRT routing (as compared to "L-shaped"

corridors) and a desire to be able to evaluate the Main Street and McVay Highway segments both separately and together.

3.4.1 BRT Service Option 1: Franklin-Main and Gateway-McVay

This option, as depicted in Figure 3.4-1, would create both Franklin-Main and Gateway-McVay BRT lines, forming direct east-west and north-south BRT corridors. This is done by extending the current BRT service from the Franklin EmX line east along the Main Street Segment to the Thurston Station, and extending the existing BRT service from the Gateway EmX line south along the McVay Highway Segment to Lane Community College.

Figure 3.4-1. BRT Service Option 1 - Franklin-Main and Gateway-McVay

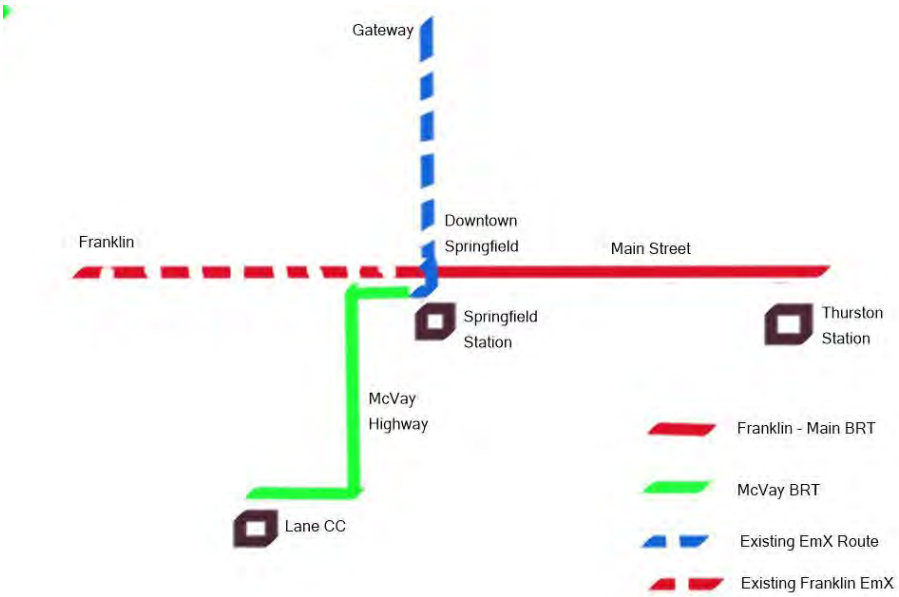


Source: Cameron McCarthy. 2014.

3.4.2 BRT Service Option 2: Franklin-Main; Gateway; McVay Highway

This option, depicted in Figure 3.4-2, extends the existing BRT service from the Franklin EmX line east on Main Street to create an east-west BRT corridor and, in addition, creates a McVay Highway BRT line. The existing BRT service on the Gateway EmX line would be severed from the existing Franklin EmX line and operate independently with a terminus at the Springfield Station.

Figure 3.4-2. BRT Service Option 2 – Franklin-Main; Gateway; and McVay Highway



Source: Cameron McCarthy. 2014.

3.4.3 BRT Service Evaluations – Option 1 and Option 2

Option 1 provides for an evaluation of a BRT network that includes both the Main Street and McVay Highway segments connected to existing BRT service. However, Option 2 does not allow for the independent evaluation of the Main Street and McVay Highway Segments since both are included in that option. Since the only difference between Options 1 and Options 2 is whether or not the Gateway and McVay BRT segments are linked, the vast majority of the ratings based on the evaluation criteria are the same (same stations, routing, environmental impacts, cost, etc.). The distinction between the two options is the requirement to transfer between the Gateway and McVay segments in Option 2, which creates some difference in the evaluation criteria related to transfers, travel time, ridership, mode share, and cost per trip. Table 3.4-1 summarizes the ratings for BRT Service Options 1 and 2. The full ratings tables and associated data tables are included in Attachment F.

Table 3.4-1. Summary of Ratings by Goal for BRT Service Options 1 and 2

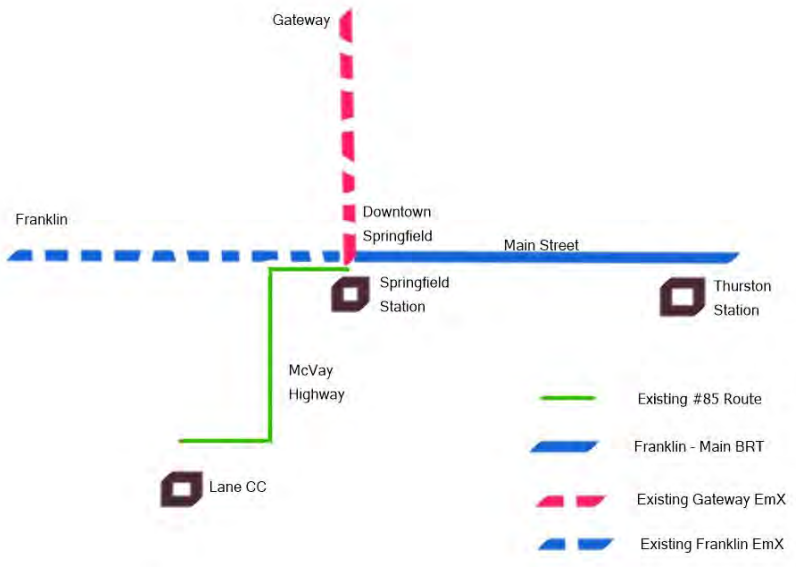
BRT Service Options			
		Decision Element Options	
Goals		Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay
Goal 1:	Improve corridor transit service	18	13
Goal 2:	Meet current and future transit demand in a cost-effective manner	4	3
Goal 3:	Support economic development, revitalization and land use redevelopment opportunities for the corridor	20	19
Goal 4:	Enhance the safety and security of the corridor	11	11
Goal 5:	Enhance other modes of travel	10	10
	SCORING TOTAL	**63**	**56**

3.4.4 Revised BRT Service Options – Option 2A and Option 2B

Option 2 does not allow for the independent evaluation of the Main Street and McVay Highway segment as possible BRT corridors. BRT Service Option 2 was split into Option 2A and Option 2B to allow for the independent evaluation of the two BRT corridor segments while honoring the direction from the Tier I screening prioritizing BRT corridors that travel east-west and north-south.

- Option 2A, as depicted in Figure 3.4-3, would add BRT service only on the Franklin-Main corridor (McVay Highway to LCC would continue to be served by Route #85).

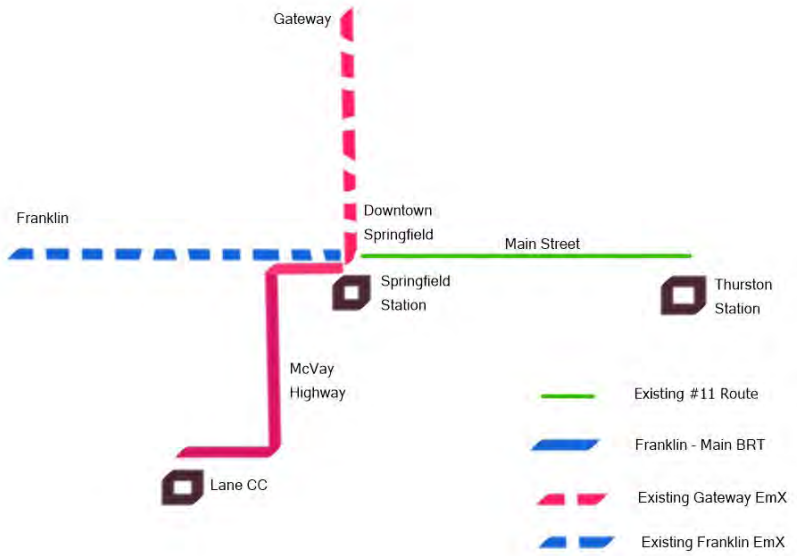
Figure 3.4-3. BRT Service Option 2A - Franklin-Main BRT



Source: Cameron McCarthy. 2014.

- Option 2B, as depicted in Figure 3.4-4, would add BRT service only on the Gateway-McVay corridor (Main Street would continue to be served by Route #11).

Figure 3.4-4. BRT Service Option 2B: Gateway-McVay BRT



Source: Cameron McCarthy. 2014.

3.4.5 Screening Evaluation – Revised BRT Service Options

The findings for screening the original Option 1 and the revised BRT Service options 2A and 2B are summarized in Table 3.4-2. Data associated with the findings are included in the tables in Attachments D and E.

Table 3.4-2. Screening Summary Revised BRT Service Options

REVISED BRT Service Options				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay
Goal 1: Improve corridor transit service				
Objective 1.1: Improve transit travel time	A. Round trip transit pm peak travel time between select origins and destinations	3	2	1
Objective 1.2: Improve transit service reliability	A. On-time performance (no more than 4 minutes late) of transit service	3	2	1
Objective 1.3: Provide convenient transit connections that minimizes the need to transfer	A. Number of transfers required between heavily used origin-destination pairs	3	2	-1

REVISED BRT Service Options				
		Decision Element Options		
Goals and Objectives	**Evaluation Criteria**	**Option 1: Franklin-Main; Gateway-McVay**	**Option 2A: Franklin-Main**	**Option 2B: Gateway-McVay**
Objective 1.4: Increase transit ridership and mode share in the corridor	A. Average weekday boardings on Corridor routes	3	2	1
	B. Transit mode share along the corridor	3	2	1
Objective 1.5: Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	**A.** Population within ½ mile of transit stop	3	2	1
	B. Bicycle capacity at stops, stations, and on the bus	3	2	1
	C. Number of park and ride spaces with direct transit access to major destinations	0	0	0
	D. Assessment of accessibility by persons with mobility challenges	3	2	2
Objective 1.6: Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status	A. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	2	1	1
	Scoring Subtotal Goal 1	**26**	**17**	**8**
Goal 2: Meet current and future transit demand in a cost-effective manner				
Objective 2.1: Control the increase in transit operating cost to serve the corridor	A. Cost per trip	-1	2	-3
	B. Impact on LTD operating and maintenance costs	-1	1	-3
	C. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	0	3	-2
	D. Cost to local taxpayers	0	1	-2
Objective 2.2: Increase transit capacity to meet current and projected ridership demand	A. Capacity of transit service relative to the current and projected ridership	3	2	1
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	A. Benefit/cost assessment of planned improvements	0	3	-2
Objective 2.4: Implement corridor improvements that minimize impacts to the environment and, where possible, enhance	A. Results of screening-level assessment of environmental impacts of transit solutions	0	0	0

REVISED BRT Service Options				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay
the environment				
	Scoring Subtotal Goal 2	**1**	**12**	**-11**
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor				
Objective 3.1: Support development and redevelopment as planned in other adopted documents	A. Support for the overall BRT System Plan	3	2	2
	B. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	3	2	2
	C. Amount of vacant and underutilized land within ½ miles of stops/stations	0	0	0
	D. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	-2	-1	-1
	E. Local jobs created by project construction	3	2	2
	F. Percentage of current and planned population within ½ mile of FTN stop	3	2	1
	G. Percentage of current and planned employment within ½ mile of FTN stop	3	2	1
Objective 3.2: Enhance the aesthetics of the corridor to improve economic activity	A. Potential impact to street trees, landscaping	-2	-1	-1
	B. Number of transit-related visual elements identified in adopted plans that would be implemented by transit solutions	2	1	1
	C. Potential impacts to the natural environment	2	1	1
	D. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	3	2	2
Objective 3.3:	A. Capability of transit	3	3	0

REVISED BRT Service Options				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay
Coordinate transit improvements with other Main Street projects	improvement to coordinate with other Main Street projects identified in adopted plans			
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	3	3	0
Objective 3.4: Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	A. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	0	0	3
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	0	0	3
Objective 3.5: Minimize adverse impacts to existing businesses and industry	A. Impacts to businesses along the Corridor measured in number and total acres of properties acquired, parking displacements, and access impacts.	-2	-1	-1
	B. Impact on freight and delivery operations for Corridor businesses	0	0	0
	Scoring Subtotal Goal 3	**22**	**17**	**15**
Goal 4: Enhance the safety and security of the corridor				
Objective 4.1: Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	A. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	2	1	1
	B. General assessment of safety for persons with mobility challenges	1	1	1
	C. General assessment of potential to reduce the number of pedestrian / vehicle collisions	0	0	0
	D. General assessment of	0	0	0

REVISED BRT Service Options				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay
	potential to reduce the number of bicycle / vehicle collisions			
Objective 4.2: Enhance the security of transit users and of the corridor as a whole	A. Amount of added street lighting	2	1	1
	B. Amount of added lighting at / near transit stops	3	2	1
	C. Extent and character of stop and station improvements	3	2	1
	Scoring Subtotal Goal 4	**11**	**7**	**5**
Goal 5: Enhance other modes of travel				
Objective 5.1: Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	A. Impact on current and future year intersection Level of Service (LOS)	0	0	0
	B. Impact on current and future year PM peak hour auto / truck travel times	0	0	0
Objective 5.2: Improve bicycle and pedestrians connections along the corridor and to and from transit stops	A. General assessment of the interface with pedestrians and bicyclists	0	0	0
	B. Length of new or improved sidewalk in stop and station areas	3	2	1
	C. Length of new or improved bike lanes in stop and station areas	3	2	1
	D. Number of bicycle treatments in stop and station areas	3	2	1
	Scoring Subtotal Goal 5	**9**	**6**	**3**
SCORING TOTALS		**69**	**59**	**20**

3.4.6 Analysis Assumptions

The following assumptions were used in this screening evaluation:

- Station locations and frequency are the same on all BRT options
- Options for lane configurations and exclusive transit lanes are not addressed as part of this analysis (only considers segment linkages)
- Pedestrian transit transfers would occur within the Springfield Station and not on public streets
- Corridor improvements will minimize impacts to eligible contributing or eligible significant historic resources
- Areas of high concentration of historic resources can be avoided or impacts can be minimized

- Improvements will be located on tax lots where buildings have greater setbacks, newer construction, or non-contributing historic resources
- Tree impacts may occur, but removal will comply with MBTA, and tree removal will be mitigated
- Rare plant habitat has been identified and avoided
- New impervious surface has been treated prior to discharge
- Wetlands, Waters of the State/United States have been identified and avoided
- There is a potential for roadway improvements along McVay between 19th Avenue and Nugget Way that could move the alignment closer to the manufactured homes on either side of the roadway

3.4.7 Key Findings

The key findings for this screening evaluation are:

Operations

- The Franklin and Main segments work well as a linked pair due to compatible operating needs (frequency of service and ridership) and a high percentage of through-routing passengers (eliminates need for a transfer)
- The Gateway and McVay segments do not work well as a linked pair due to incompatible operating needs (frequency of service, ridership, and weekend service)
- Motor vehicle, freight, pedestrian and bicycle operations are not affected by the introduction of a transfer.

Ridership

- Option 1 (Franklin-Main and Gateway-McVay BRT) would add approximately 17 percent to corridor ridership. (Year 2035 model projections)
- Option 2A (Franklin-Main BRT) would add approximately 12 percent corridor ridership. (Year 2035 model projections)
- Option 2B (Gateway McVay BRT) would add approximately 4 percent corridor ridership. (Year 2035 model projections)
- The Thurston High School extension (6 trips per day) would add about approximately 1 percent (about 100 daily boardings) in addition to the ridership increase of the Franklin-Main BRT. (Year 2035 model projections)

Costs and Funding

- Option 2A is very likely to meet FTA Small Starts requirements, while Option 2B is unlikely to meet the requirements. Option 1 is uncertain whether it would meet the requirements.
- Option 2A likely reduce LTD operating costs due to faster service, while Options 1 and 2B would increase LTD operating costs due to increased frequency on the McVay Highway Segment

Environmental

- Of the approximately 50 eligible contributing and eligible significant historic resources that have been identified thus far, over 40 resources are located in the Main-Downtown Corridor Segment. There is the potential to adversely affect these historic resources in the Main-Downtown Segment Corridor:
    - Historic commercial buildings are constructed close to the street with little setback and potential impacts could include loss of parking and loss of access to historic resources;
    - This area has the highest concentration of eligible historic resources;
    - Partial acquisitions and strip takes could adversely affect historic resources if alterations to the resource are required.
- Corridor segments Main-Central, Main-East, McVay-South and McVay-North appear to have few eligible contributing or eligible significant resources
- A complete survey of all historic resources must be completed to determine all potentially eligible historic resources that may be affected by the proposed project
- The McVay Highway route has limited natural resources.
- Main Street options may impact more trees, but offer aesthetic corridor improvements.
- The Key Findings for noise include:
    - There is no predicted change in noise levels along the Main Street section of the corridor, and no noise impacts are predicted.
    - There is a potential for transit related noise impacts in the north end of the corridor, at the manufactured home parks, south of 19th Avenue.
    - There is no predicted change in noise levels along the section of the corridor south of Nugget Way, and no noise impacts are predicted.
- The air quality is predicted to meet the National or State Ambient Air Quality Standards and no air quality impacts are projected.

3.4.8 Project Team Recommendations

The Project Team recommends:

- **Advance the extension of BRT service from the Franklin EmX line to the Main Street segment (Option 2A)** as a potentially promising solution.
- **Eliminate the extension of BRT service from the Gateway EmX line to McVay Highway (Option 2B)** at this time. While that option has benefits, it would add substantial operating cost for LTD and may not have sufficient ridership to meet Small Starts eligibility requirements.[2] The McVay

[2] The Small Starts Program is part of FTA's New Starts Program. FTA's New Starts/Small Starts Program provides funding for new rail or busway projects, the improvement and maintenance of fixed guideway systems, and the upgrading of systems. Capital assistance grants provide up to 80% of the net project costs. Projects qualifying for funding under FTA's Small Starts Program must have a total project cost less than $250 million and requesting less than $75 million in FTA funding.

Highway segment should be considered for future BRT service, with that decision to be triggered by Glenwood development thresholds.

- **Eliminate Option 1** since the extension of the Gateway EmX to McVay Highway included in that option would add substantial operating cost for LTD and may not have sufficient ridership to meet Small Starts eligibility requirements.
- **Operate the existing BRT service in the Gateway EmX corridor as an independent corridor** that starts and ends at the Springfield Station.

3.5 BRT Lane Configurations

Lane configuration options for BRT range from exclusive transit lanes to semi-exclusive transit lanes (which are shared with vehicles making turns) to mixed traffic. A detailed analysis of the most appropriate lane configuration for a particular street section is beyond the scope of this Study. This Study evaluates three basic approaches to BRT lane configurations.

- **Lane Configuration Option 1: Low Exclusivity**: Under this option, a majority of the BRT line would operate in mixed traffic. Exclusive or semi-exclusive transit lanes would only be applied in the following situations:
    - Intersection that are currently or projected to be severely congested and cause a high-level of transit delay; and
    - Where there are opportunities for transit lanes that can be installed with minimal adverse impact to businesses, property owners, residents, or other modes of travel.
- **Lane Configuration Option 2: Moderate Exclusivity**: This option would result in a BRT line that was a mixture of mixed traffic and exclusive or semi-exclusive transit lanes. Exclusive or semi-exclusive transit lanes would be applied in the following situations:
    - Intersection that are currently or projected to be severely congested and cause a high-level of transit delay;
    - Where there are opportunities for transit lanes that can be installed with minimal adverse impact to businesses, property owners, residents, or other modes of travel; and
    - Locations that have available right-of-way or where roadway expansion would have minimal impact on existing business, or residents.
- **Lane Configuration Option 3: High Exclusivity**: This option would result in a BRT line with a large majority of the corridor in exclusive or semi-exclusive transit lanes. Transit lanes would be implemented along the corridor except in the following situations:
    - Where the addition of transit lanes would result in the direct impact on a building and the displacement of an existing business or residence;
    - Locations where the addition of transit lane would have a very large cost, such as widening of a bridge.

As noted above in the descriptions of the BRT lane approaches, a range of lane configurations can be used in each level of exclusivity. Lane configurations can be "mixed and matched" along the corridor, with decisions based on the need for priority, cost, opportunities, and impacts to property or other modes of travel. For example, an exclusive or semi-exclusive transit lane could transition to mixed traffic to avoid impacts to a business near the edge of the right-of-way or to avoid having to widen a bridge. Every segment of the corridor can be evaluated independently with consideration given to seamlessly transitioning from one type of lane to another.

The photos in Figure 3.5-1 are representative examples of typical BRT lane configurations in this region. The examples range from mixed traffic to exclusive lanes and each has been used in low, moderate or high exclusivity sections of BRT corridors.

Figure 3.5-1: Photo Examples of Existing Lane Configurations in Region

1: EmX in Mixed Traffic, Harlow Road, Springfield

2: Business Access Transit (BAT) Lane, Pioneer Parkway West, Springfield

3: EmX in Bi-Directional Lane, East 11th Avenue, Eugene

4: Gateway Mall EmX Station, Springfield

5: EmX in Exclusive Lane, Franklin Boulevard, Eugene

6: EmX McVay Station Queue-Jump, Springfield

7: Exclusive Lane with Shared Left Turn, RiverBend Drive, Springfield

8: EmX in Exclusive Lane with Shared Left Turn, RiverBend Drive, Springfield

9: Exclusive Lane with Shared Left Turn, International Way, Springfield

Source: Lane Transit District. 2014.
Parsons Brinckerhoff. 2014.

3.5.1 Screening Evaluation

The findings for screening BRT Main Street Downtown Routing are summarized in Table 3.5-1. Data associated with the findings are included in the tables in Attachments D and E.

Table 3.5-1. Screening Summary BRT Lane Configurations

BRT Lane Configurations				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria]	Option 1: Low Exclusivity	Option 2: Moderate Exclusivity	Option 3: High Exclusivity
Goal 1: Improve corridor transit service				
Objective 1.1: Improve transit travel time	A. Round trip transit pm peak travel time between select origins and destinations	1	2	3
Objective 1.2: Improve transit service reliability	A. On-time performance (no more than 4 minutes late) of transit service	1	2	3
Objective 1.3: Provide convenient transit connections that minimizes the need to transfer	A. Number of transfers required between heavily used origin-destination pairs	0	0	0
Objective 1.4: Increase transit ridership and mode share in the corridor	A. Average weekday boardings on Corridor routes	1	2	3
	B. Transit mode share along the corridor	1	2	3
Objective 1.5: Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	A. Population with ½ mile of transit stop	0	0	0
	B. Bicycle capacity at stops, stations, and on the bus	0	0	0
	C. Number of park and ride spaces with direct transit access to major destinations	0	0	0
	D. Assessment of accessibility by persons with mobility challenges	2	3	2
Objective 1.6: Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status	A. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	1	1	1
	Scoring Subtotal Goal 1	**7**	**12**	**15**
Goal 2: Meet current and future transit demand in a cost-effective manner				
Objective 2.1: Control the increase in transit operating cost to serve the corridor	A. Cost per trip	1	2	3
	B. Impact on LTD operating and maintenance costs	1	2	3

BRT Lane Configurations

Goals and Objectives	Evaluation Criteria]	Decision Element Options Option 1: Low Exclusivity	Option 2: Moderate Exclusivity	Option 3: High Exclusivity
	C. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	3	3	2
	D. Cost to local taxpayers	-1	-1	-1
Objective 2.2: Increase transit capacity to meet current and projected ridership demand	A. Capacity of transit service relative to the current and projected ridership	3	3	3
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	A. Benefit/cost assessment of planned improvements	1	1	1
Objective 2.4: Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	A. Results of screening-level assessment of environmental impacts of transit solutions	0	-1	-3
	Scoring Subtotal Goal 2	**8**	**9**	**8**
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor				
Objective 3.1: Support development and redevelopment as planned in other adopted documents	A. Support for the overall BRT System Plan	1	2	3
	B. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	3	3	3
	C. Amount of vacant and underutilized land within ½ miles of stops/stations	0	0	0
	D. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	-1	-2	-3
	E. Local jobs created by project construction	1	2	3
	F. Percentage of current and planned population within ½ mile of FTN stop	0	0	0
	G. Percentage of current and planned employment within ½ mile of FTN stop	0	0	0
Objective 3.2: Enhance the	A. Potential impact to street	-1	-2	-3

BRT Lane Configurations

Goals and Objectives	Evaluation Criteria]	Decision Element Options Option 1: Low Exclusivity	Option 2: Moderate Exclusivity	Option 3: High Exclusivity
aesthetics of the corridor to improve economic activity	trees, landscaping			
	B. Number of transit-related visual elements identified in adopted plans that would be implemented by transit solutions	1	2	3
	C. Potential impacts to the natural environment	1	2	3
	D. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	1	2	3
Objective 3.3: Coordinate transit improvements with other Main Street projects	A. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	1	2	3
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	1	2	3
Objective 3.4: Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	A. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	1	2	3
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	1	2	3
Objective 3.5: Minimize adverse impacts to existing businesses and industry	A. Impacts to businesses along the Corridor measured in number and total acres of	-1	-2	-3

BRT Lane Configurations				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria]	Option 1: Low Exclusivity	Option 2: Moderate Exclusivity	Option 3: High Exclusivity
	properties acquired, parking displacements, and access impacts.			
	B. Impact on freight and delivery operations for Corridor businesses	1	2	3
	Scoring Subtotal Goal 3	**10**	**17**	**24**
Goal 4: Enhance the safety and security of the corridor				
Objective 4.1: Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	A. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	3	2	1
	B. General assessment of safety for persons with mobility challenges	2	3	2
	C. General assessment of potential to reduce the number of pedestrian / vehicle collisions	3	2	1
	D. General assessment of potential to reduce the number of bicycle / vehicle collisions	1	2	1
Objective 4.2: Enhance the security of transit users and of the corridor as a whole	A. Amount of added street lighting	1	2	3
	B. Amount of added lighting at / near transit stops	3	3	3
	C. Extent and character of stop and station improvements	3	3	3
	Scoring Subtotal Goal 4	**16**	**17**	**14**
Goal 5: Enhance other modes of travel				
Objective 5.1: Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	A. Impact on current and future year intersection Level of Service (LOS)	1	2	3
	B. Impact on current and future year PM peak hour auto / truck travel times	1	2	3
Objective 5.2: Improve bicycle and pedestrians connections along the corridor and to and from transit stops	A. General assessment of the interface with pedestrians and bicyclists	3	2	1
	B. Length of new or improved sidewalk in stop and station areas	1	2	3

BRT Lane Configurations				
		Decision Element Options		
Goals and Objectives	Evaluation Criteria*j*	Option 1: Low Exclusivity	Option 2: Moderate Exclusivity	Option 3: High Exclusivity
	C. Length of new or improved bike lanes in stop and station areas	1	2	3
	D. Number of bicycle treatments in stop and station areas	2	2	3
	Scoring Subtotal Goal 5	**9**	**12**	**16**
SCORING TOTAL		**50**	**67**	**77**

3.5.2 Analysis Assumptions

The following assumptions were used in this screening evaluation:

- Right-of-way expansion would occur equally on both sides of the street
- High-exclusivity options would require the most right of way
- Moderate right-of-way options are assumed to require about half the right-of-way of the high exclusivity option
- Station locations and frequency of service are assumed to be the same for the various lane configuration options
- Low exclusivity would provide up to one-third transit lanes (BAT, queue jump or dedicated lanes)
- Moderate exclusivity would provide approximately half transit lanes (BAT, queue jump or dedicated lanes)
- High exclusivity would provide more than two-thirds transit lanes (BAT, queue jump or dedicated lanes)
- Higher exclusivity may add roadway width which creates a wider pedestrian crossing, resulting in an increased pedestrian/vehicle conflict zone
- Low exclusivity would not require ROW takes from eligible historic resources.
- Possible queue jump lanes would remain at the proposed locations of McVay Highway/Franklin, Main/42nd, Main / Highway 126
- Sections that would result in significant impacts to eligible historic resources would be avoided unless required to address a transit delay
- Significant pinch points and exclusive and semi-exclusive transit lanes will be located at non-historic or non-contributing historic resources whenever feasible
- The assessment of adverse effects to historic resources will consider direct, indirect, and cumulative effects. Potential impacts to historic resources in the APE could include: (1) loss of parking and access to historic resources in commercial areas; (2) partial acquisitions and strip

takes could adversely affect historic resources if alterations to the resource are required; or (3) alterations to the setting or surroundings of a historic resource due to project improvements

- Tree impacts may occur, but removal will comply with MBTA, and tree removal will be mitigated.
- Rare plant habitat has been identified and avoided.
- New impervious surface has been treated prior to discharge.
- Wetlands, Waters of the State/United States have been identified and avoided.
- There is a potential for roadway improvements along McVay between 19th Avenue and Nugget Way that could move the alignment closer to the manufactured homes on either side of the roadway

3.5.3 Key Findings

The key findings for this screening evaluation are:

Cost

- High exclusivity lane configuration options have higher cost and more impacts to property, street trees, and parking than moderate or low-exclusivity options
- High exclusivity options have lower operating cost, higher ridership, and lower cost per trip than moderate or low-exclusivity options

Operations

- The higher the exclusivity, the higher the benefit to motor vehicle, freight and transit operations

Environmental

- Low exclusivity would have no impact to historic resources
- Moderate exclusivity would have low potential for adverse effects to historic resources as long as eligible contributing or eligible significant resources can be avoided
- High exclusivity has the greatest potential for adverse effects to historic resources due to extent of potential ROW takes (up to 20 feet)
- Minor strip takes will generally result in No Adverse Effect to historic resources. Impacts will be adverse if an eligible resource is affected or if a substantial portion of the tax lot from an eligible resource is taken for project purposes. In such a case, Section 4(f) documentation will be required to demonstrate that such taking and effect if necessary for project purposes and that there is no “prudent and feasible” alternative.
- There does not appear to be potential for a historic district at any location along the APE corridor, so any project effects will be considered to each resource individually, rather than as a collective impact to a potential historic district
- The high exclusivity option has the most potential for significant biological, fish and wetland related impacts because of tree removal and roadside wetland ditch impacts
- Main Street options may impact more trees, but offer aesthetic corridor improvements
- The McVay Highway route has limited natural resources

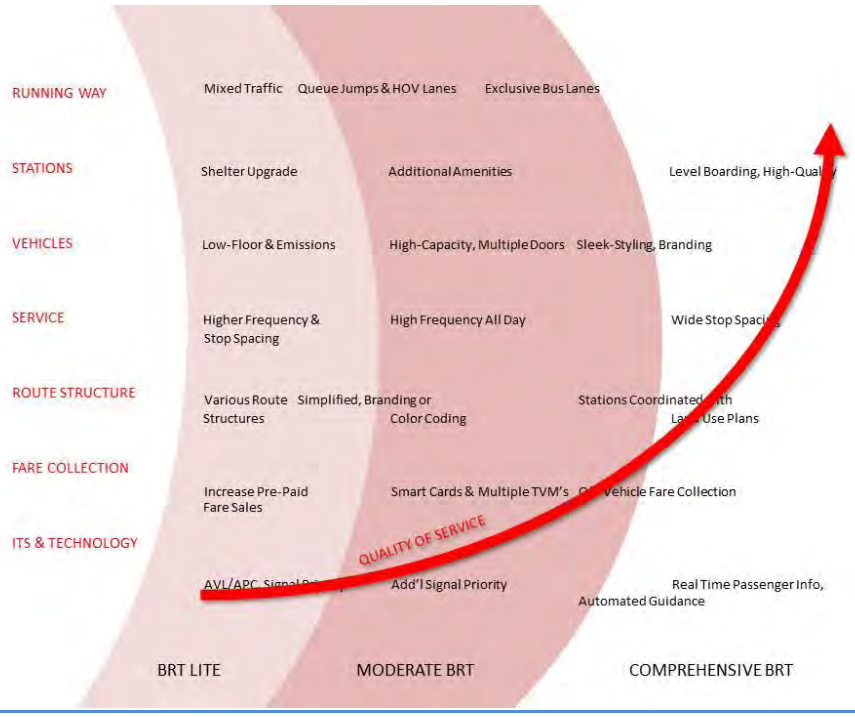
- The Key Findings for noise include:
    - There is no predicted change in noise levels along the Main Street section of the corridor, and no noise impacts are predicted
    - There is a potential for transit related noise impacts in the north end of the corridor, at the manufactured home parks, south of 19th Avenue
    - There is no predicted change in noise levels along the section of the corridor south of Nugget Way, and no noise impacts are predicted
- The air quality is predicted to meet the National or State Ambient Air Quality Standards and no air quality impacts are projected

3.5.4 Project Team Recommendation

The Project Team recommends:

- **Advance Option 2: Moderate Exclusivity** to the package of transit solutions. Moderate exclusivity, applied strategically, provides the greatest degree of flexibility in meeting the transit operating needs while best addressing potential impacts. This option, when combined with other BRT elements, would result in better transit service and increased ridership. As the number of BRT elements included in a transit solution increases, there is a proportionate increase in the quality of service which attracts greater numbers of riders (Figure 3.5-2, lane exclusivity is referred to as "running way" in the figure).

Figure 3.5-2. Relationship Between BRT Elements and Quality of Service



Source: Lane Transit District. 2014.

- **Eliminate Option 1: Low Exclusivity and Option 3: High Exclusivity**. Both Options have less flexibility for meeting transit operating needs. Option 1: Low Exclusivity may not provide the

level of transit priority to maintain transit travel time and service reliability into the future, especially if a corridor experiences increasing levels of congestion over time. Option 3: High Exclusivity has the greatest potential to impact more natural and built environment resources and to increase new impervious area adversely affecting stormwater and natural resources.

4 Next Steps

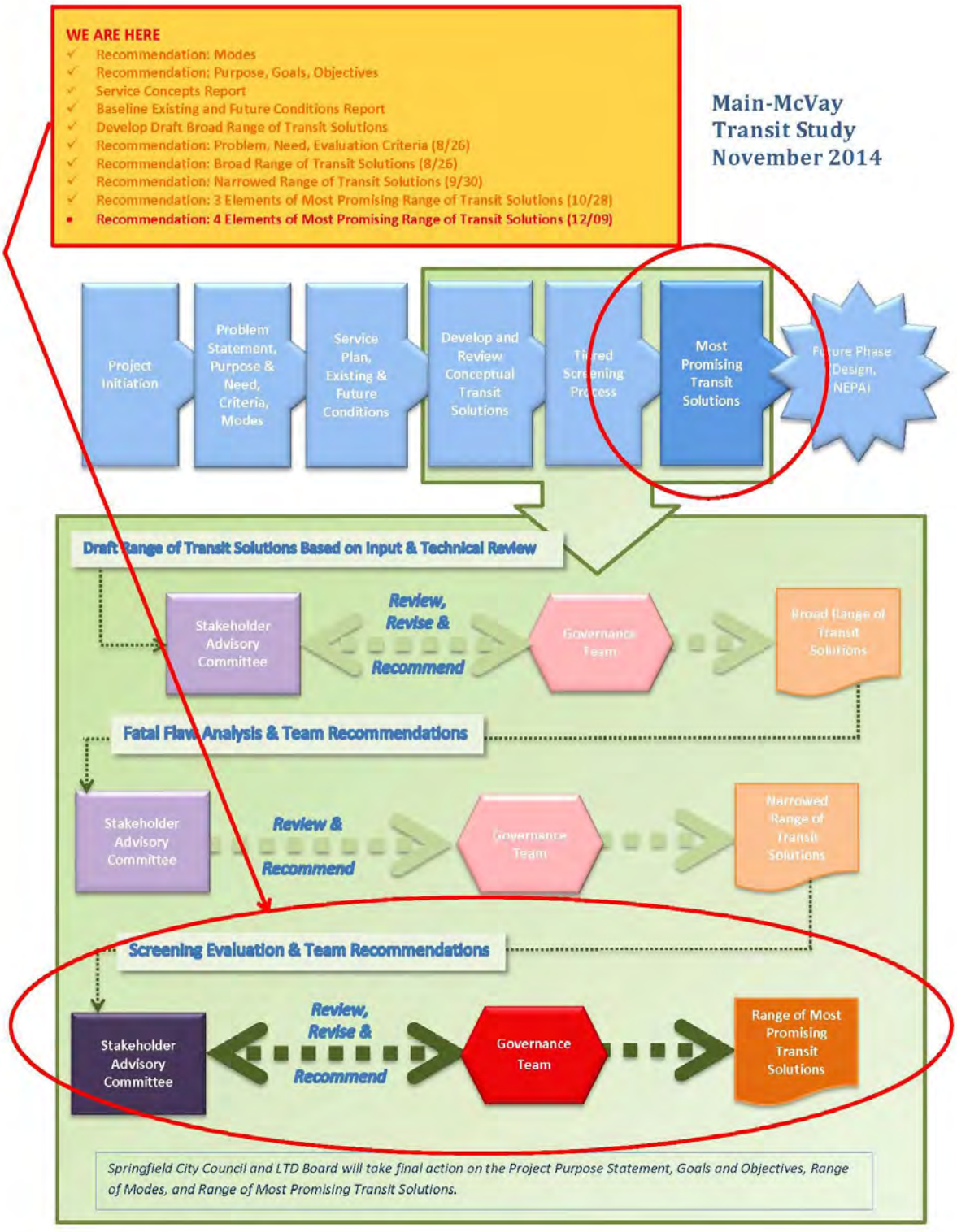
The findings and recommendations from this Screening-Level Evaluation will be considered by the SAC and the GT in determining the range of Most Promising Transit Solutions, which are those solutions that have the greatest probability of addressing the identified Corridor transportation problems.

After the SAC has made recommendations for all seven of the Decision Elements, the Project Team will combine the elements into a package of transit solutions to be considered by the SAC and the GT. The SAC and the GT are anticipated to meet in January 2015 to consider the package of Most Promising Transit Solutions.

In February 2015, the GT is anticipated to make a final recommendation regarding which transit solutions hold the most promise for resolving transportation problems in the Corridor. Recommendations from the SAC and the GT will be advanced to the Springfield City Council and LTD Board in spring 2015.

For the most current meeting schedule, please see the project website http://ourmainstreetspringfield.org.

Figure 4.1-1. Main-McVay Transit Study "We Are Here"



Source: Wannamaker Consulting, 2014.

Attachment A: Study Problem Statement, Purpose and Need, Goals and Objectives, and Evaluation Criteria

Study Problem Statement

The following draft Problem Statement was prepared by the Stakeholder Advisory Committee and approved by the Governance Team (on September 4, 2014).

The Main-McVay Corridor is an L-shaped Corridor extending from 69th Street on Main Street to Lane Community College on McVay Highway. The Corridor is comprised of two segments, the Main Street Segment and the McVay Highway Segment, which connect at Franklin Boulevard and McVay Highway. Main Street and McVay Highway are currently major transit corridors, connecting with each other and with other transit service at the Springfield Transit Station. The segments, while part of an overall corridor, have differing issues and concerns that are to be addressed by this study.

Main Street Segment

Transit Service on Main Street is hindered by overcrowded buses, increasing transit travel time and operating cost caused by signal and passenger boarding delays, and safety and security issues for passengers accessing buses at transit stops that are poorly lit and not located at signalized street crossings. If not addressed, these issues will worsen in the future as the corridor's population, employment, and transit ridership increase.

McVay Highway Segment

Transit service on McVay Highway is hindered by poor pedestrian access, service demand primarily limited to the school season and weekdays, rider security and safety concerns for passengers accessing buses at transit stops that are poorly lit and not located at signalized street crossings, and the unfunded need to improve the congested I-5 interchange. If not addressed, these issues will worsen in the future and the transit system in this segment will not be positioned to handle the higher density development within and adjacent to the McVay Highway Segment planned for in the recently adopted Glenwood Refinement Plan.

Project Purpose and Need

The following Purpose and Need Statements were prepared by the Stakeholder Advisory Committee and the Governance Team. The Statement of Purpose has been reviewed by the Springfield City Council (on July 7, 2014) and the LTD Board of Directors (on July 16, 2014). The Statement of Need was approved by the Governance Team on September 4, 2014.

Statement of Purpose

The purpose of the Main-McVay Transit Study project is to identify a range of transit improvements in the Main-McVay Corridor that provide improved mobility and transportation choices to residents, businesses, visitors, and commuters. The improvements will be consistent with regional plans and the

community's long-term vision and goals for the area. The range of improvements will include options that result in improved regional connectivity and equitable transit access to destinations such as employment, educational institutions, shopping, appointments, and recreational opportunities for area residents.

The project improvements would strive to enhance the safety and security of the Corridor, improve the integration of walkers, cyclists, transit riders, autos, and freight along and through the Corridor, and improve connections to and from adjacent neighborhoods.

The project would support local, regional, and state plans and goals for land use and transportation; efforts in the Main-McVay Corridor aimed at encouraging economic revitalization and land use redevelopment; and, plans and programs to create Main Street and McVay Highway identities and improve aesthetics on the Corridor, making it an attractive place to live, work, and shop.

Statement of Need

The need for the project results from:

- High transit ridership along the Main Street corridor that results in overcrowding of bus trips during peak travel times. The #11 Thurston route which operates on Main Street has the second highest ridership in the LTD system (after EmX), with an average of more than 3,500 boardings per weekday. This is more than double any other non-EmX bus route. During the past year, seven buses were overcrowded to the point that 78 riders were left behind at stop(s);
- Pedestrian safety issues for riders walking to and from the bus stops on Main Street, including street crossings to access bus stops that are not located near a signalized or enhanced crossing. From 2009 through 2013, along Main Street between McVay Highway and 68th Street, there were a total of 29 pedestrian injuries including three (3) fatalities and six (6) severe injuries. From 1999 through 2010, there have been a total of nine (9) pedestrian fatalities during the past ten years along Main Street between 20th and 73rd Streets;
- Bicycle related safety issues along the Main Street Corridor, with 33 bicycle injuries, including one (1) fatal and one (1) severe injury reported during the 2008 through 2013 time period;
- From 2004 through 2013 there were no reported pedestrian injuries and two (2) bicycle injuries (neither was a fatal or severe injury) on the McVay Segment of the Corridor. Despite the low number of reported injuries on this Segment, as this area continues to develop there is a greater probability for pedestrian and bicycle safety issues for riders accessing transit service on McVay Highway due to high travel speeds, narrow roadways, and lack of sidewalks in many areas;
- High student use along the corridor, especially in the Thurston area, creates special safety and access issues;
- Lengthening transit travel times and deteriorating public transportation reliability in the Main Street segment due to growing traffic congestion, signal delays, and passenger boarding delays. Average run time route on the #11 Thurston has increased 3.5 percent in the last five years, with midday run

time increasing by more than 10 percent during that period. In the fall of 2014, schedule time will be added to the route due to the lengthening travel time. Approximately 7.5 percent of the #11 Thurston trips on an average weekday are more than four (4) minutes late, a figure that is higher than the system average of 7.0 percent;

- Limited corridor revitalization and redevelopment resulting from aging structures and infrastructure and a poor visual environment along Main Street, South A Street, and McVay Highway;
- Historic and projected increases in traffic congestion in the Main-McVay Corridor due to increases in regional and corridor population and employment. Four (4) intersections in the corridor (McVay/Franklin, Main/42nd, Main/Hwy 126, and Main/58th) are projected to exceed ODOT mobility standards for 2035;
- The approach to Lane Community College from Interstate 5 has a very high level of congestion in the morning periods, which creates delays for the #85 LCC/Springfield route;
- The Interstate 5 interchange at 30th Avenue is in need of improvements to address traffic and safety issues. While there is a recognized need for improvements to the interchange, funding and the schedule for the improvements are uncertain;
- For this corridor project, McVay Highway, as designed today, does not support the proposed mixed-use development goals expressed in the Glenwood Refinement Plan or the Franklin Boulevard Redevelopment Project;
- Policy direction in regional and City transportation plans that assume increased reliance on public transportation to address the community's future transportation needs;
- LTD has experienced an average annual increase in operating costs of 6.2 percent (1999-2010), combined with increasingly scarce operating resources, while trying to meet the demand for more efficient public transportation operations;
- The decision in the adopted 2035 Regional Transportation Plan (RTP) to include bus rapid transit (composed of frequent, fast transit service along major corridors and neighborhood feeder service that connects with the corridor service and with activity centers) in the fiscally constrained model as part of the regional transportation strategy.
- The decision in the adopted Springfield 2035 Transportation System Plan (STSP) to include partnering with LTD to provide frequent transit network (FTN) connections along major corridors, connecting to local neighborhood bus service and major activity centers to provide viable alternatives to vehicle trips. The STSP incorporates numerous FTN projects and 20-year priority roadway, urban standards and pedestrian / bicycle projects relevant to the Main-McVay Transit Study.
- Local and regional land use and development plans, goals, and objectives that identify the Main-McVay Corridor for residential, commercial, retail, institutional/educational, government, and industrial development to help accommodate forecasted regional population and employment growth.

Study Goals and Objectives

The following Goals and Objectives were prepared by the Stakeholder Advisory Committee and the Governance Team. These Goals and Objectives have been reviewed by the Springfield City Council (on July 7, 2014) and the LTD Board of Directors (on July 16, 2014).

Goal 1: Improve corridor transit service

- Objective 1.1: Improve transit travel time
- Objective 1.2: Improve transit service reliability
- Objective 1.3: Provide convenient transit connections that minimize the need to transfer
- Objective 1.4: Increase transit ridership and mode share along the corridor
- Objective 1.5: Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit
- Objective 1.6: Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status.

Goal 2: Meet current and future transit demand in a cost-effective and sustainable manner

- Objective 2.1: Control the increase in transit operating cost to serve the corridor
- Objective 2.2: Increase transit capacity to meet current and projected ridership demand
- Objective 2.3: Implement corridor improvements that provide an acceptable return on investment
- Objective 2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment

Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor

- Objective 3.1: Support development and redevelopment as planned in other adopted documents
- Objective 3.2: Enhance the aesthetics of the corridor to improve economic activity
- Objective 3.3: Coordinate transit improvements with other Main Street projects
- Objective 3.4: Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects
- Objective 3.5: Minimize adverse impacts to existing businesses and industry

Goal 4: Enhance the safety and security of the corridor

Objective 4.1: Improve the safety of pedestrians and bicyclists accessing transit and crossing the Corridor

Objective 4.2: Enhance the security of transit users and of the corridor as a whole

Goal 5: Enhance other modes of travel

Objectives 5.1: Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor

Objectives 5.2: Improve bicycle and pedestrians connections along the corridor and to and from transit stops

Evaluation Criteria

Evaluation Criteria will be used during the Tier II Screening Evaluation to determine how well each of the proposed transit solutions would meet the project's Goals and Objectives. The Evaluation Criteria will require a mix of quantitative data and qualitative assessment. The resulting data will be used to measure the effectiveness of proposed transit solutions and to assist in comparing and contrasting each of the solutions. In Table 2.6-1, Evaluation Criteria are listed for each of the project's Objectives. Some Objectives have only one criterion for measuring effectiveness while others require several criteria to measure effectiveness.

The following Evaluation Criteria were prepared by the Stakeholder Advisory Committee and the Governance Team. The Evaluation Criteria were approved by the Governance Team on September 4, 2014.

Table A-1. Evaluation Criteria

Goals and Objectives	Evaluation Criteria
Goal 1: Improve corridor transit service	
Objective 1.1: Improve transit travel time	• Round trip transit pm peak travel time between select origins and destinations
Objective 1.2: Improve transit service reliability	• On-time performance (no more than 4 minutes late) of transit service
Objective 1.3: Provide convenient transit connections that minimizes the need to transfer	• Number of transfers required between heavily used origin-destination pairs
Objective 1.4: Increase transit ridership and mode share in the corridor	• Average weekday boardings on Corridor routes • Transit mode share along the corridor
Objective 1.5: Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	• Population with ½ mile of transit stop • Bicycle capacity at stops, stations, and on the bus • Number of park and ride spaces with direct transit access to major destinations • Assessment of accessibility by persons with mobility challenges
Objective 1.6: Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status	• Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.
Goal 2: Meet current and future transit demand in a cost-effective manner	

Goals and Objectives	Evaluation Criteria
Objective 2.1: Control the increase in transit operating cost to serve the corridor	• Cost per trip • Impact on LTD operating and maintenance costs • Meet or exceed FTA's Small Starts requirements for cost-effectiveness • Cost to local taxpayers
Objective 2.2: Increase transit capacity to meet current and projected ridership demand	• Capacity of transit service relative to the current and projected ridership
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	• Benefit/cost assessment of planned improvements
Objective 2.4: Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	• Results of screening-level assessment of environmental impacts of transit solutions
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	
Objective 3.1: Support development and redevelopment as planned in other adopted documents	• Support for the overall BRT System Plan • Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept • Amount of vacant and underutilized land within ½ miles of stops/stations • Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements • Local jobs created by project construction • Percentage of current and planned population within ½ mile of FTN stop • Percentage of current and planned employment within ½ mile of FTN stop
Objective 3.2: Enhance the aesthetics of the corridor to improve economic activity	• Potential impact to street trees, landscaping • Number of transit-related visual elements identified in adopted plans that would be implemented by transit solutions • Potential impacts to the natural environment • Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas
Objective 3.3: Coordinate transit improvements with other Main Street projects	• Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans • Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects
Objective 3.4: Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	• Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans • Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard /

Goals and Objectives	Evaluation Criteria
	McVay Highway projects
Objective 3.5: Minimize adverse impacts to existing businesses and industry	• Impacts to businesses along the Corridor measured in number and total acres of properties acquired, parking displacements, and access impacts. • Impact on freight and delivery operations for Corridor businesses
Goal 4: Enhance the safety and security of the corridor	
Objective 4.1: Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	• Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized) • General assessment of safety for persons with mobility challenges • General assessment of potential to reduce the number of pedestrian / vehicle collisions • General assessment of potential to reduce the number of bicycle / vehicle collisions
Objective 4.2: Enhance the security of transit users and of the corridor as a whole	• Amount of added street lighting • Amount of added lighting at / near transit stops • Extent and character of stop and station improvements
Goal 5: Enhance other modes of travel	
Objective 5.1: Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	• Impact on current and future year intersection Level of Service (LOS) • Impact on current and future year PM peak hour auto / truck travel times
Objective 5.2: Improve bicycle and pedestrians connections along the corridor and to and from transit stops	• General assessment of the interface with pedestrians and bicyclists • Length of new or improved sidewalk in stop and station areas • Length of new or improved bike lanes in stop and station areas • Number of bicycle treatments in stop and station areas

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Attachment B: Land Use Forecasting Methodology

Land Use Forecasting in the Central Lane MPO area

The land use allocation model (composed of land supply and capacity submodels) was developed at LCOG. It is designed to be used with the regional travel demand model, and provides the land use forecasts that the travel model relies upon. Given residential and employment growth targets, it allocates growth to developable locations within the modeled area guided by the comprehensive plan, density restrictions, and other parameters. It is appropriate for large areas such as UGBs and for reasonably long forecast time periods where the up and down cycles of development are smoothed over time.

Analysis Area

The modeled area is that covered by the Transportation Analysis Zones of the Central Lane MPO travel model. This area includes the MPO boundary, which in turn includes the UGBs of Eugene, Springfield and Coburg. A small area of rural Lane County lands surrounding these cities is also within the modeled area. Each of these subareas (the three UGBs and the Lane County areas) are given separate targets for residential and employment growth.

Time Period

The future year forecast is described by adding residential and employment growth in each subarea to a base year scenario. The 'base year' represents the best available knowledge of land use conditions in the area at the start of the project. For this model, the base year represents the end of 2010/the start of 2011; the forecast year is 2035.

Population

The forecast 2035 populations for the urban growth boundaries of Springfield, Eugene, and Coburg are those adopted by Lane County (Ordinance 1255, 17 June 2009)[1]. The base year city populations are from Census 2010 with populations outside the cities estimated using the Census block data household size, vacancy rate, and the known location of residences in this area. See Table 1.

Population growth is translated into a need for housing units of various types, using an assumed household size and a housing mix. These and other details are provided by the city's residential land study, as well as from historic and current data from various sources.

Employment

The employment forecasts for Eugene and Springfield UGBs and the county subarea were developed by LCOG and are based on 30 years of employment data from Oregon Employment Department. The process first developed a county forecast; then, a forecast for the Eugene/Springfield Metro Area as a share of the county level was developed; this was then allocated between Eugene and Springfield. The Coburg forecast was provided by the City of Coburg. See Table 1.

Employment growth is divided into business sectors based on the current sector mix and short term forecasts in the education sector. Information from the city's commercial and industrial buildable land studies is used along with historic and current data from various sources.

Locating development

In certain areas, there are known developments that are highly likely in the short term. These include redevelopment as well as greenfield projects. There are also refinement plans that

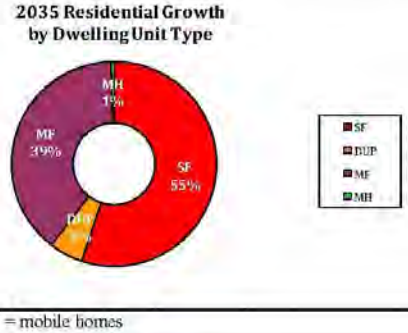
[1]Population Forecasts for Lane County, its Cities and Unincorporated Area 2008-2035. Prepared by Population Research Center, Portland State University, Portland, OR. May 2009.

include specific details about planned residential and employment growth and changes in plan designation. City planners provide input to the modeling process about these 'pipeline' projects, indicating the fraction of planned growth that is to be expected in the forecast period, and the intended mix of residential and employment types. These projects and plans are thus translated into growth that is 'placed' in the specified development areas. The pipeline projects can also remove housing or employment as in redevelopment. Springfield's pipeline projects, including Glenwood and the Downtown Springfield Plans are summarized in Table 2.

The remainder of the targeted growth following the allocation of the pipeline projects is then allocated to the remaining supply of developable land within the model subarea. Analysis of base year conditions from the Regional Land Information Database yields the supply of developable land. This includes vacant parcels as well as infill opportunities. Based primarily on the comprehensive land use plan, available land is suitable only for certain types of use with certain maximum densities. The land use model allocates growth to suitable land within this supply. This, in general, results in increases in residential and employment densities as the available land supply has continued to shrink over time.

The following summarizes the residential growth by dwelling unit type in Springfield:

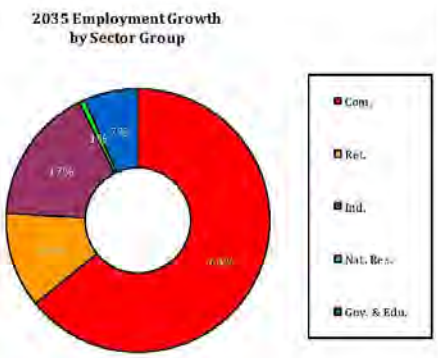
Dwelling Unit Type	2035 Units	Pct.
SF	3,996	56%
DUP	391	5%
MF	2,832	39%
MH	(35)	0%
Total	*7,184*	*100%*



SF = single family; DUP = duplex, MF = apartments, MH = mobile homes

The following summarizes employment growth by sector in Springfield:

Sector Group	2035 Emp.	Pct.
Com.	7,014	64%
Ret.	1,282	12%
Ind.	1,837	17%
Nat. Res.	77	1%
Gov. & Edu.	725	7%
Total	*10,935*	*100%*



Com = Commercial; Ret= Retail; Ind=Industrial; NatRes= Natural Resources; Gov & Edu = Government and Education.

Table 1. Population and Employment Growth

Summary of Population and Employment for base year 2010 model and 2035 reference land use (includes Coburg UGB expansion for residential growth)

	Population			Household Population (excludes Group Quarters)			Household Residences			Covered Employment			Employ.	Pop
	[1] 2010	[2] 2035	Growth	[1] 2010	[2] 2035	Growth	[3] 2010	[4] 2035	[5] Net Growth	[6] 2010	[7] 2035	[8] Net Growth	AAGR %	AAGR %
Eugene UGB	177,332	219,059	41,727	170,043	210,055	40,012	78,844	97,327	18,483	80,900	114,457	33,557	1.4%	0.8%
Springfield UGB	67,683	84,828	17,145	67,031	84,011	16,980	28,304	35,488	7,184	29,300	40,235	10,935	1.3%	0.9%
Coburg UGB[9]	1,035	4,354	3,319	1,035	4,214	3,179	413	1,644	1,231	1,223	3,455	2,232	4.2%	5.9%
Lane Co within MPO Analysis Area	7,307	8,184	877	7,295	8,171	876	3,088	3,458	370	5,138	6,506	1,368	0.9%	0.5%
Total Analysis Area	253,357	316,425	63,068	245,404	306,451	61,047	110,649	137,917	27,268	116,561	164,653	48,092	1.4%	0.9%

[1] From 2010 Census blocks
[2] From Lane County Coordinated Population Forecast, PSU, 2009
[3] From Regional Land Use Information System, residence address points
[4] From Coordinated population growth and safe harbor 2010 Census average household size; Coburg Urbanization Plan
[5] From Land Use Allocation Model based on targeted household population growth and housing mix
[6] From October 2009 Oregon Employment Department, disaggregated by LCOG
[7] Forecast by LCOG using trends in covered employment data from 1970 through 2009 from OED, OEA 2040 forecast, and OED 2010-2020 Lane County forecast
[8] From Land Use Allocation Model based on targeted employment growth and available land supply and employment mix
[9] Coburg's UGB is assumed to expand to accommodate residential growth; Employment expansion to the east of I-5 is assumed to accommodate an additional 600 employees beyond that shown in the table

Table 2. Springfield Pipeline projects summary

	Employment						Residential				
Pipeline Project Area	**Commercial**	**Retail**	**Industrial**	**Natural Resources**	**Government**	**Net Employment Growth**	**Single family**	**Duplex**	**Apartments**	**Mobile Homes**	**Net Residential Growth**
Downtown Springfield	435	77	41	0	99	652	(6)	0	150	0	144
Glenwood	2045	320	373	17	31	2786	(39)	(2)	278	(59)	178
Jasper Meadows							64	4	0	0	68
Jasper Natron	509	52	296	29	7	892	1,030	81	195	0	1,306
Liberty Bank	266	0	18	0	0	285	(1)	0	0	0	(1)
Marcola Meadows	324	213	0	0	0	537	257	14	247	0	518
Mountaingate							286	15	0	0	301
Rainbow SD Surplus							66	4	0	0	70
River Bend	425	50	0	0	23	498	(4)	(5)	776	0	767
River Heights							56	3	0	0	59
Royal Caribbean	304	0	0	0	0	304					
Education (various)	0	0	0	0	315	315					
Westwind Estates							61	5	0	0	66
Weyerhauser-IP	0	0	46	0	0	46					
Totals	4308	711	775	46	475	6314	1770	119	1646	-59	3476

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Attachment C: Travel Demand Forecasting Methodology

Travel Demand Forecasting Methodology Brief - Main/McVay Transit Study

Introduction

Following is a brief description of the travel demand modeling methods used in preparing transit ridership forecasts and related evaluation measures for Lane Transit District's (LTD's) Main/McVay Transit Study. For more detailed information see Lane Council of Governments (LCOG) full model documentation report *LCOG Travel Demand Forecasting Model Documentation Report 2007* and the *LCOG Trip-Based Demand Model Validation Report (2004 and 2007).*

Travel demand forecasting uses data gathered from multiple sources to estimate relationships that describe travel outcomes. In particular, surveys of households in our region are used to describe the travel choices made by members of the households. The relationships derived from these analyses constitute the model that when setup with parameters describing future costs and other variables (as noted below in model framework), produces projections of future behavior.

Model Overview

LCOG, the Metropolitan Planning Organization (MPO) for the Central Lane County area, maintains and applies its own regional travel demand forecasting model, which is used for the region's various planning projects. The area covered includes the Eugene, Springfield and Coburg UGBs and a small area of surrounding rural land.

The model was developed by LCOG and PB Consult following the guidelines and procedures manual of the ODOT Transportation Planning Analysis Unit. The structure and assumptions are consistent with nearly all Oregon MPO 4-step models.

The LCOG model has the following characteristics:

Model Framework: Sequential 4-step trip based model with 7 trip purposes and 666 transportation analysis zones (TAZ's), small geographic areas that together cover the modeled region. The spatial pattern of residences and employment in each TAZ across the model area is an essential input to the travel model.

1. **Trip Generation** – Do I want or need to make a trip? Determines the number of trips in each zone taken for each trip purpose, as a function of land use, household demographics, employment, and other socio-economic factors including age, income, car ownership, and children.
2. **Trip Distribution** – Where do I want to go? Matches origins with destinations by trip purpose based on travel time and distance.
3. **Mode Choice** – What travel mode will I use to get there? Computes the proportion of trips between each origin and destination that use a particular transportation mode. Choice is based on cost (auto operating, parking, transit fares, and tolls if applicable), travel time, auto

availability, access to transit, urban design, and household income. Choice of modes include drive alone, shared ride (carpool), walk to transit, park/kiss-and-ride to transit, walk, and bike.

4. **Assignment** – What route should I take? Allocates trips between each origin and destination taken by a particular mode to a route.
    a. Auto assignment – by time of day to streets based on quickest path accounting for congestion.
    b. Transit Assignment – identifies routes available for a trip then selects the shortest time route (or routes) based on walk time, wait time, and time spent in vehicle.
    c. Bike Assignment – identifies the quickest route on which bikes are permitted.
    d. Walk Assignment – identifies the quickest route on which pedestrians are permitted.

Calibration/Validation - Model results compared to actual counts, both auto and transit, and adjusted/calibrated as needed.

- Auto – compares model auto volumes to highway counts across cutlines (a representation of a group of parallel facilities that allow for capturing overall travel flow from one part of the region to another) and significant roadways throughout the region.
- Transit – compares model transit ridership results to automated passenger counts (APC) and survey data on a system wide and route (or groupings of routes based on common origin-destination location) basis.

Attachment D: Data Tables

BRT Routing: McVay South

Table D-1. BRT Routing Options: McVay South Data

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
Goal 1: Improve corridor transit service	1.1 Improve transit travel time	a. Round trip pm peak travel time between select origins and destinations	No change from existing conditions	No change from existing conditions	Minimal travel time differences
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	No change from existing conditions	Some improvement over existing conditions	McVay approach at 30th is congested in morning times a and can cause bus delays
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	Not affected	Not affected	Options do not impact transfers
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	No change from existing conditions	No change from existing conditions	Both options serve low population/employment areas. McVay may better development along McVay Highway
		b. Transit mode share along the corridor	No change from existing conditions	No change from existing conditions	Mode split related to ridership: expect little difference between options
	1.5 Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	a. Population with ½ mile of transit stop	23,400 people	23,400 people	Even though the analysis took into account the barrier of I-5 between the two alignments, the number of people served by each option is the same.
		b. Bicycle capacity at stops, stations, and on the bus	Not affected	Not affected	Same number of stations

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
		c. Number of park and ride spaces with direct transit access to major destinations	Not affected	Not affected	All options serve existing park and rides. No park and rides are assumed to be added.
		d. Assessment of accessibility by persons with mobility challenges	Moderate improvement over existing conditions	Moderate improvement over existing conditions	Rated on distance to stop for the greatest number of people
	1.6 Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status.	a. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	Moderate improvement over existing conditions	Moderate improvement over existing conditions	Options have limited impact on equity of service provision relative to those populations
Goal 2: Meet current and future transit demand in a cost-effective manner	2.1 Control the increase in transit operating cost to serve the corridor	a. Cost per trip	Not affected	Not affected	Assumes no travel time differences
		b. Impact on LTD operating and maintenance costs	Not affected	Not affected	Assume no travel time differences
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	Not affected	Not affected	Options unlikely to affect SS ratings
		d. Cost to local taxpayers	Not affected	Not affected	Assumes no travel time differences or operating/capital cost differences
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	Not affected	Not affected	Same service frequency and bus capacity

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Not affected	Not affected	Same number of stations and bus requirements for both options. McVay Highway options may require a queue-jump at 30th.
	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative	Lower potential for impacts to natural resources	Moderate potential for impacts to natural resources	Both options have the potential for beneficial effects. However, there is a greater potential for impacts to natural resources along Old Franklin including protected species.
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.1 Support development and redevelopment as planned in other adopted documents	a. Support for the overall BRT System Plan	Supports Plan	Supports Plan	BRT System Plan includes McVay Highway
		b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	Supports Plan	Supports Plan	All options consistent with FTN concept
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	2,726 Acres/ 1,512 Properties	2,578 Acres/ 1,481 Properties	Within 1/2 mile from stations. Underutilized land is defined as having less improvement value than land value. Old Franklin has 148 fewer acres of vacant and underutilized land within ½ mile of stops / stations. Includes vacant and underutilized land outside the UGB.
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	Potential for some acquisitions	No acquisitions likely	McVay Option may require queue jump at 30th. Otherwise minimal acquisition requirements

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
		e. Local jobs created by project construction	Would create some construction related jobs but no significant difference between options	Would create some construction related jobs but no significant difference between options	The routing options would create some construction related jobs
		f. Percentage of current and planned population within ½ mile of FTN stop	Current Population: 23,375 of 53,650 = 43.6% Planned Population: 25,950 of 67,400 = 38.5% Population increase of 2,575 between 2011 and 2035 w/in 1/2 mile of the station / stops	Current Population: 23,425 of 53,650 = 43.7% Planned Population: 25,975 of 67,400 = 38.5% Population increase of 2,550 between 2011 and 2035 w/in 1/2 mile of the stations / stops	Population growth is anticipated with ½ mile of stations /stops; however, growth within the Corridor as a whole will be significant and outpace growth within the ½ mile stations / stops. Population data (current and planned) based on data from LCOG used in regional model. (Population has been rounded to the nearest 25.)
		g. Percentage of current and planned employment within ½ mile of FTN stop	Current Employment: 9,725 of 18,250 = 53.3% Planned Employment: 14,050 of 26,675 = 52.7% Employment increase of 4,325 between 2011 and 2035 w/in 1/2 mile of stations / stops	Current Employment: 9,975 of 18,250 = 54.7% Planned Employment: 14,375 of 26,675 = 53.9% Employment increase of 4,400 between 2011 and 2035 w/in 1/2 mile of stations / stops	Employment growth is anticipated within ½ mile of stations / stops; however, growth within the Corridor as a whole will be significant and outpace growth within ½ mile of stations / stops. Employment growth (current and planned) based on data from LCOG used in regional model. (Employment has been rounded to the nearest 25.)
	3.2 Enhance the aesthetics of the	a. Potential impact to street trees, landscaping	Unlikely to impact trees	Greater potential to impact trees	Old Franklin is a more natural area

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
	corridor to improve economic activity	b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	Neutral	Neutral	Transit-related visual elements not identified in adopted plans
		c. Potential impacts to the natural environment	Neutral	Neutral	Few of the environmental elements are related to aesthetics and economic activity. There is potential for some improvements that may enhance aesthetics along the corridor but the improvements over existing conditions would be similar. For impacts to the environment, refer to criterion 2.4A.
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	Potential to improve urbanized environment	Greater potential to adversely affect more natural environmental	Opportunities to improve more urbanized McVay Highway Streetscape while Old Franklin is a more natural environment that could be adversely affected
	3.3 Coordinate transit improvements with other Main Street projects	a. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	Not affected	Not affected	Options do not affect Main Street
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	Not affected	Not affected	Options do not affect Main Street

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
	3.4 Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	a. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	Would benefit from the proposed project	Would improve access to the proposed Hwy 58 to Franklin Blvd Bike-Ped Facility	The Lane County TSP proposes several 20-year improvement projects in this segment of the Corridor. The McVay Highway option would benefit from the proposed Bloomberg connector to 30th (avoiding the I-5 interchange congestion) and the Old Franklin option would improve access to proposed Seavey Loop Bike-Ped Facilities.
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	Greater opportunities because more visible	Fewer opportunities because less visible	BRT includes investments in landscaping, pedestrian and bicycle access, lighting, and urban design associated with stations; these investments would be similar for both options. However, McVay Highway has a greater degree of visibility along the roadway and from I-5
	3.5 Minimize adverse impacts to existing businesses and industry	a. Impacts to businesses along the Corridor measured in number and total acreage of property acquired, parking displacements, and access impacts	Potential impacts from queue jump	No likely impacts	McVay Option may require queue jump at 30th
		b. Impact on freight and delivery operations for Corridor businesses	More potential to impact freight traffic	Less potential to impact freight traffic	More freight traffic on McVay Highway
the safety and security	4.1 Improve the safety of pedestrians and bicyclists accessing	a. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	Improvements over existing conditions	Improvements over existing conditions	Assumes enhanced pedestrian crossings at each station for both options

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
	transit and crossing Main Street	b. General assessment of safety for persons with mobility challenges	Improved access	Improved access	BRT includes improved sidewalks which could improve access for persons with mobility challenges for both options
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	Moderate improvements over existing conditions	Moderate improvements over existing conditions	Assumes enhancements at each station. Unlikely to be significant differences in this criterion between the two routing options
		d. General assessment of potential to reduce the number of bicycle / vehicle collisions	Neutral	Neutral	Assumes enhancements at each station; however, both roadways have few to no bicycle facilities and station area improvements are not likely to reduce the overall number of collisions. Unlikely to be significant differences between the two routing options
	4.2 Enhance the security of transit users and of the corridor as a whole	a. Amount of added street lighting	Low to Moderate level of improvement over existing conditions	Low to Moderate level of improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service and could include adding street lighting improvements at crossings and signalized intersections where other BRT related improvements are made

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
		b. Amount of added lighting at / near transit stops	High level of improvement over existing conditions	High level of improvement over existing conditions	Adding BRT stations would increase lighting, however, there is no difference between options because same number of stations for both options. Also, the greater distance in station spacing for both options would reduce the cumulative effect of added lighting
		c. Extent and character of stop and station improvements	High level of improvement over existing conditions	High level of improvement over existing conditions	Adding BRT stations would include stop and station improvements; however, there is no difference between options because same number of stations for both options
Goal 5: Enhance other modes of travel	5.1 Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	a. Impact on current and future year intersection Level of Service (LOS)	Not affected	Not affected	Service options do not affect this criterion – effects are dependent on level of lane exclusivity
		b. Impact on current and future year PM peak hour auto / truck travel times	Not affected	Not affected	Service options do not affect this criterion – effects are dependent on level of lane exclusivity
	5.2 Improve bicycle and pedestrians connections along the	a. General assessment of the interface with pedestrians and bicyclists	Moderate improvements over existing conditions	Moderate improvements over existing conditions	Unlikely to be significant differences in this criterion between the two routing options

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
	corridor and to and from transit stops	b. Length of new or improved sidewalk in stop and station areas	Improvement over existing conditions but with limited benefit in the near term	Improvement over existing conditions but with limited benefit in the near term	Sidewalks are limited or do not exist in this area and BRT stations would include new and improved pedestrian access. However, the benefit of sidewalk improvements in an area of few to no sidewalks would be limited. Sidewalks improvements would be similar for both options because the same number of stations for both options
		c. Length of new or improved bike lanes in stop and station areas	Improvement over existing conditions but with limited benefit in the near term	Improvement over existing conditions but with limited benefit in the near term and greater opportunity for connectivity to proposed multi-use paths	Bike lanes are limited or do not exist in this area and BRT stations would include new and improved bicycle access consistent with adopted plans and programs. However, the benefit of bike lanes in an area of few to no bike lanes would be limited. Bike lane improvements would be similar for both options because the same number of stations for both options. Opportunities for connectivity to proposed bike and multi-use paths identified in adopted plans is greater on the east side of I-5.

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
		d. Number of bicycle treatments in stop and station areas	May be improvement over existing conditions	Greater likelihood of improvement over existing conditions related to opportunity for connectivity to proposed multi-use paths	Bike facilities in this area are limited or do not exist. Investment in bicycle treatments at stops / station areas is related to the anticipated level of use. Although there are the same number of stations for both options there is greater opportunity for connectivity to proposed multi-use paths on the east side of I-5 and therefore a greater likelihood of bicycle use.

Enhanced Bus Options

Table D-2. Enhanced Bus Options Data

			ENHANCED BUS OPTIONS			
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
Goal 1: Improve corridor transit service	1.1 Improve transit travel time	a. Round trip pm peak travel time between select origins and destinations	Moderate level of improvement b/c higher level of congestion	Lower level of improvement b/c less congestion	Low to moderate level of improvement b/c moderately better for some transit users and no improvement for others	Qualitative analysis based on number of traffic signals, future congestion and level of express service.
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	Moderate level of improvement	Low level of improvement	Low to moderate level of improvement	Qualitative analysis based on number of traffic signals, future congestion and level of express service.
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	Not affected	Not affected	Not affected	All options would travel along the same corridor and to the same destinations; there would be no discernable difference among these options.
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	Low-Moderate level of improvement (+1%)	Low level of improvement (0%)	Low-Moderate level of improvement (1%)	Main Street Express option with reduced #11 service results in a ridership decrease.
		b. Transit mode share along the corridor	Low-Moderate level of improvement (+1%)	Low level of improvement (0%)	Low-Moderate level of improvement (1%)	Mode split tracks with ridership

ENHANCED BUS OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
	1.5 Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	a. Population within ½ mile of transit stop	No change over existing conditions	No change over existing conditions	Increases capacity b/c more frequent service	All options would serve the same stations and provide access to the same populations.
		b. Bicycle capacity at stops, stations, and on the bus	Not affected	Not affected	Not affected	All options would provide similar amenities at stations, such as bicycle racks. Buses would offer the same bicycle capacity.
		c. Number of park and ride spaces with direct transit access to major destinations	Not affected	Not affected	Not affected	All options would travel along the same corridor and to the same destinations; there would be no discernable difference among these options.
		d. Assessment of accessibility by persons with mobility challenges	Not affected	Not affected	Not affected	All options would provide similar access to stations and stations are spaced close together. No options have raised platforms or other accessibility improvements
	1.6 Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status.	a. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	Not affected	Not affected	Not affected	All options serve the same areas with the same stops.

ENHANCED BUS OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
Goal 2: Meet current and future transit demand in a cost-effective manner	2.1 Control the increase in transit operating cost to serve the corridor	a. Cost per trip	Moderate improvement over existing conditions	Moderate improvement over existing conditions	Would increase operating costs with relatively small increase in ridership	Adding an express bus on Main Street would add operating cost.
		b. Impact on LTD operating and maintenance costs	Moderate improvement over existing conditions	Moderate improvements over existing conditions	Would increase operating costs	Enhanced bus on Main Street or McVay Highway (assuming same frequency) would reduce operating cost due to faster service. Adding an express bus on Main Street would add operating cost.
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	Does not meet requirements	Does not meet requirements	Does not meet requirements	Projects of this kind would not qualify for FTA Small Starts and, therefore, would not qualify for federal funding from this grant program.
		d. Cost to local taxpayers	Capital costs offset by operating cost savings	Capital costs offset by operating cost savings	Increased operating costs	All funds from this project would likely be from local or regional sources. Main Street express would add operating cost
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	No impact on capacity	No impact on capacity	Moderate increase in capacity	Options 1 and 2 do not increase capacity relative to current service unless frequency is improved. Option 3 adds an express bus that increases capacity.

ENHANCED BUS OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Benefits offset costs	Benefits offset costs	Increased operating costs are not offset by benefits	Low cost improvements, but ridership increases are also low.
	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative	No anticipated impacts	No anticipated impacts	No anticipated impacts	Although the options would include improvements to station areas because no expansion of the ROW is required the impacts are anticipated to minimal.
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.1 Support development and redevelopment as planned in other adopted documents	a. Support for the overall BRT System Plan	Does not support Plan	Does not support Plan	Does not support Plan	BRT System Plan proposes BRT on Main Street and McVay Highway
		b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	Supports Plan	Supports Plan	Supports Plan	Assuming that the options include increased service frequency, all options consistent within FTN concept
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	Not affected	Not affected	Not affected	All options would serve the same stations and, therefore, would have similar proximity to vacant and underutilized lands.
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	No likely impacts	No likely impacts	No likely impacts	It is unlikely that station improvements for these options would require acquisition of property or parking displacement..
		e. Local jobs created by project construction	No likely impacts	No likely impacts	No likely impacts	Options create minimal to no construction activity

ENHANCED BUS OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
		f. Percentage of current and planned population within ½ mile of FTN stop	Not affected	Not affected	Not affected	All options would serve the same stations and, therefore, would serve the same populations.
		g. Percentage of current and planned employment within ½ mile of FTN stop	Not affected	Not affected	Not affected	All options would serve the same stations and, therefore, would serve the same employers.
	3.2 Enhance the aesthetics of the corridor to improve economic activity	a. Potential impact to street trees, landscaping	No likely impacts	No likely impacts	No likely impacts	No ROW expansion anticipated
		b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	Some support for Plan	Neutral	Some support for Plan	For enhanced bus, investment in transit-related visual elements is limited to station and stop areas. Main Street Vision identifies visual elements that could be partially supported by enhanced bus options while no adopted plans address visual elements for McVay South
		c. Potential impacts to the natural environment	No effect	No effect	No effect	Low potential for any enhanced bus options to affect corridor aesthetics and improve economic activity.
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	Poor	Poor	Poor	Enhanced Bus options would not include significant non-transit improvements since no identifiable funding source.

ENHANCED BUS OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
	3.3 Coordinate transit improvements with other Main Street projects	a. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	Some support for Plan projects	Does not affect Main Street projects	Some support for Plan projects	Enhanced bus options provide some investment in station area improvements and signal improvements that would support some of the projects identified in the adopted Main Street plans
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	Some support for Plan	Does not affect Main Street projects	Some support for Plan	For enhanced bus, investment in transit-related visual elements is limited to station and stop areas. Main Street Vision identifies design elements that could be partially supported by enhanced bus options
	3.4 Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	a. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	Does not affect Franklin Blvd / McVay Highway projects	Some support for Plan	Does not affect Franklin Blvd / McVay Highway projects	Enhanced bus options provide some investment in station area improvements and signal improvements that would support some of the proposed projects Franklin Boulevard / McVay Highway projects
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	Does not affect Franklin Blvd / McVay Highway projects	Some support for projects	Does not affect Franklin Blvd / McVay Highway projects	For enhanced bus, investment in transit-related visual elements is limited to station and stop areas. Design elements identified in Franklin Blvd / McVay Highway projects could be partially supported by enhanced bus options

		ENHANCED BUS OPTIONS				
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
	3.5 Minimize adverse impacts to existing businesses and industry	a. Impacts to businesses along the Corridor measured in number and total acreage of property acquired, parking displacements, and access impacts	No likely impacts	No likely impacts	No likely impacts	It is unlikely that station improvements for these options would require acquisition of property or parking displacement. Under no circumstance would these options displace businesses.
		b. Impact on freight and delivery operations for Corridor businesses	No likely impacts	No likely impacts	No likely impacts	Freight not affected by transit service options
Goal 4: Enhance the safety and security of the corridor	4.1 Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	a. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	Not affected	Not affected	Not affected	There would likely be no pedestrian crossing improvements associated with these options.
		b. General assessment of safety for persons with mobility challenges	Low to moderate improvements over existing conditions	Moderate improvements over existing conditions	Low to moderate improvements over existing conditions	Enhanced bus options provide some investment in station area improvements and signal improvements that would improve safety for persons with mobility challenges
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	Low potential to reduce collisions	Low potential to reduce collisions	Low potential to reduce collisions	Unlikely to be significant differences in this criterion between the service options
		d. General assessment of potential to reduce the number of bicycle / vehicle collisions	Low potential to reduce collisions	Low potential to reduce collisions	Low potential to reduce collisions	Unlikely to be significant differences in this criterion between the service options
	4.2 Enhance the security of transit users and of the corridor as a whole	a. Amount of added street lighting	None	None	None	Enhanced bus options typically do not include added street lighting

ENHANCED BUS OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
		b. Amount of added lighting at / near transit stops	Moderate improvements over existing conditions	Moderate to High Improvements over existing conditions but offset by limited number of stops	Low Improvements over existing conditions	Enhanced bus options can include station / stop area improvements including lighting
		c. Extent and character of stop and station improvements	Moderate improvements over existing conditions	Moderate to High Improvements over existing conditions	Low Improvements over existing conditions	Enhanced bus options can include station / stop area improvements
Goal 5: Enhance other modes of travel	5.1 Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	a. Impact on current and future year intersection Level of Service (LOS)	No significant impact	No significant impact	No significant impact	Unlikely to be significant impact on LOS
		b. Impact on current and future year PM peak hour auto / truck travel times	No significant impact	No significant impact	No significant impact	Based on number of traffic signals, future congestion and level of express service, unlikely to be significant impact on travel times
	5.2 Improve bicycle and pedestrians connections along the corridor and to and from transit stops	a. General assessment of the interface with pedestrians and bicyclists	No significant change over existing conditions	No significant change over existing conditions	No significant change over existing conditions	Enhanced bus service will not decrease conflicts. Higher volume of pedestrians and cyclists on Main Street. Fewer bike / ped facilities on McVay Highway.
		b. Length of new or improved sidewalk in stop and station areas	Low to Moderate improvements over existing conditions	Moderate to High Improvements over existing conditions	Low Improvements over existing conditions	Enhanced bus options provide some investment in station area improvements and signal improvements that would improve sidewalks

ENHANCED BUS OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
		c. Length of new or improved bike lanes in stop and station areas	No improvements over existing conditions	No improvements over existing conditions	No improvements over existing conditions	Enhanced bus options provide some investment in station area improvements but would not include bike lanes
		d. Number of bicycle treatments in stop and station areas	Low to Moderate improvements over existing conditions	Low to Moderate to Improvements over existing conditions	Low Improvements over existing conditions	Enhanced bus options provide some investment in station area improvements such as bicycle racks but do not typically include bicycle treatments such as bike lockers

Revised BRT Service Options

Table D-3. Revised BRT Service Options Data

			REVISED BRT SERVICE OPTIONS			
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
Goal 1: Improve corridor transit service	1.1 Improve transit travel time	a. Round trip pm peak travel time between select origins and destinations	High level of improvement	Moderate level of improvement	Low level of improvement	Travel times improved with BRT service. McVay Highway has the least current delay, so less improvements
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	High level of improvement	Moderate level of improvement	Low level of improvement	Based on number of traffic signals, future congestion and level of express service. McVay Highway segment has fewer signals and congestion points
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	High level of improvement	Moderate level of improvement	Net increase in transfers	Franklin-Main the priority for transfer connections. Option 2B connects Gateway and McVay, but severs the Gateway-Franklin connection, resulting in a new increase in transfers.

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	17% increase in combined Main-McVay corridor	12% increase in combined Main-McVay corridor	4% increase in combined Main-McVay corridor	Based on ridership model data
		b. Transit mode share along the corridor	17% increase in combined Main-McVay corridor	12% increase in combined Main-McVay corridor	4% increase in combined Main-McVay corridor	Mode split tracks with ridership
	1.5 Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	a. Population with ½ mile of transit stop	High percentage of corridor population (23,373 people)	Relatively high percentage of corridor population (22,850 people)	Relatively low percentage of corridor population (3,900 people)	Main Street Segment has more population than McVay highway Segment
		b. Bicycle capacity at stops, stations, and on the bus	High	Relatively High	Moderate	Main Street Segment has more stations (and, thus, bike capacity) than McVay highway Segment
		c. Number of park and ride spaces with direct transit access to major destinations	Not affected	Not affected	Not affected	All options would travel along the same corridor and to the same destinations; there would be no discernable difference among these options.

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
		d. Assessment of accessibility by persons with mobility challenges	High improvement	Moderate improvement	Moderate improvement	BRT options improve accessibility. While there are more stops on Main Street, there is more room for improvements along McVay Highway.
	1.6 Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status.	a. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	Not affected	Not affected	Not affected	All options serve the same areas with the same stops.
Goal 2: Meet current and future transit demand in a cost-effective manner	2.1 Control the increase in transit operating cost to serve the corridor	a. Cost per trip	Higher cost per trip due to McVay Highway Segment operating cost increase	Reduced cost per trip due to travel time improvements on Main Street segment and ridership increase	High cost per trip cost due to McVay Highway Segment operating cost increase	Operating cost increases on McVay Highway not offset by ridership increases.
		b. Impact on LTD operating and maintenance costs	Higher operating cost due to McVay Highway Segment frequency increase	Likely reduced operating cost due to travel time improvements on Main Street segment	Higher operating cost due to McVay Highway Segment frequency increase	Operating cost increases on McVay Highway due to higher BRT service frequency

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	Questionable in meeting requirements due to cost-efficiency of McVay Segment	Likely to score very high on Small Starts ratings	Very unlikely to meet Small Starts requirements due to cost-efficiency	Based on current Small Starts criteria
		d. Cost to local taxpayers	Moderate	Relatively Low	High	Local costs include capital match and operating costs. McVay highway would increase operating costs in converted to a BRT corridor
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	High	High	Low	BRT increases capacity through higher frequency and bus size. Capacity issues primarily on main Street Segment
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Uncertain	High	Low	Main Street benefits high, but low cost-effectiveness of McVay Segment
	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative	Neutral	Neutral	Neutral	There is little to no difference in the potential impacts or beneficial effects of the service options

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.1 Support development and redevelopment as planned in other adopted documents	a. Support for the overall BRT System Plan	Both corridors in Plan	Corridor in Plan	Corridor in Plan	BRT System Plan proposes BRT on Main Street and McVay Highway
		b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	Both corridors in Plan	Corridor in Plan	Corridor in Plan	FTN on Main Street and McVay Highway
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	Moderate 2,726 acres / 1,512 properties	Moderate 960 acres / 1,330 properties	Moderate 812 acres / 480 properties	All options would serve all corridor with either BRT or conventional service, so minimal changes in adjacent land uses
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	Uncertain	Uncertain	Uncertain	While some acquisition is certain to be required for BRT, extent of acquisition depends largely on lane configuration question.
		e. Local jobs created by project construction	High	Moderate	Moderate	Construction of both segments would create more construction jobs than a single segment.

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
		f. Percentage of current and planned population within ½ mile of FTN stop	High Current Population: 23,375 of 53,650 = 43.6% Planned Population: 25,950 of 67,400 = 38.5% Population increase of 2,575 between 2011 and 2035 w/in 1/2 mile of the stations	Moderate Current Population: 22,850 of 53,650 = 43.0% Planned Population: 25,400 of 67,400 = 37.7% Population increase of 2,550 between 2011 and 2035 w/in 1/2 mile of the stations	Low Current Population: 3,900 of 53,650 = 7.3% Planned Population: 4,500 of 67,400 = 6.7% Population increase of 600 between 2011 and 2035 w/in 1/2 mile of the stations	Main Street Segment has more population than McVay highway Segment
		g. Percentage of current and planned employment within ½ mile of FTN stop	High Current Employment: 9,700 of 18,250 = 53.2% Planned Employment: 14,050 of 26,675 = 52.7% An employment increase of 4,350 between 2011 and 2035 w/in 1/2 mile of the stations	Moderate Current Employment: 7,400 of 18,250 = 40.5% Planned Employment: 11,150 of 26,675 = 41.8% An employment increase of 3,750 between 2011 and 2035 w/in 1/2 mile of the stations	Low Current Employment: 5,000 of 18,250 = 27.4% Planned Employment: 7,850 of 26,675 = 29.4% An employment increase of 2,850 between 2011 and 2035 w/in 1/2 mile of the stations	Main Street Segment has more employment than McVay highway Segment

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
		a. Potential impact to street trees, landscaping	Uncertain	Uncertain	Uncertain	While some impact on street trees is likely to be required for BRT, extent of impact depends largely on lane configuration question.
	3.2 Enhance the aesthetics of the corridor to improve economic activity	b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	Supports adopted plans and programs	Supports adopted plans and programs	No adopted plans address visual elements for McVay South	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. Main Street Vision Plan and other plans/programs identify visual elements that would be supported by BRT options while no adopted plans address visual elements for McVay South

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
		c. Potential impacts to the natural environment	Higher positive effect	Positive effect	Positive effect	For most of the environmental elements, there is no relationship to aesthetics and economic activity. However, BRT options would include station area improvements (lighting, landscaping, urban design elements) but the effect would be greater with the higher number of stations.
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	Positive effect	Positive effect	Positive effect	BRT options provide opportunities for streetscape enhancements.

		REVISED BRT SERVICE OPTIONS				
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
	3.3 Coordinate transit improvements with other Main Street projects	a. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	Support for Plan projects	Support for Plan projects	Does not affect Main Street projects	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support projects identified in the adopted Main Street plans and programs
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	Support for Plan projects	Support for Plan projects	Does not affect Main Street projects	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support design elements identified in the adopted Main Street plans and programs

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
	3.4 Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	a. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	Does not affect Franklin Blvd / McVay Highway projects	Support for Plan	Does not affect Franklin Blvd / McVay Highway projects	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support the proposed Franklin Boulevard / McVay Highway projects
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	Does not affect Franklin Blvd / McVay Highway projects	Support for Plan	Does not affect Franklin Blvd / McVay Highway projects	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support design elements identified in proposed Franklin Boulevard / McVay Highway projects

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
	3.5 Minimize adverse impacts to existing businesses and industry	a. Impacts to businesses along the Corridor measured in number and total acreage of property acquired, parking displacements, and access impacts	Uncertain	Uncertain	Uncertain	Acquisitions and displacements are not impacted by the service option decision, though possible with BRT options.
		b. Impact on freight and delivery operations for Corridor businesses	Likely Low Impact	Likely Low Impact	Likely Low Impact	Freight not affected by transit service options
Goal 4: Enhance the safety and security of the corridor	4.1 Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	a. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	Improvement	Improvement	Improvement	BRT options would likely include pedestrian crossings, with greater improvement potential with BRT on both BRT segments.
		b. General assessment of safety for persons with mobility challenges	Moderate improvements	Moderate improvements	Moderate improvements	BRT includes improved sidewalks which could improve access for persons with mobility challenges for both options, though stops are farther apart

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	Low potential	Low potential	Low potential	Unlikely to be significant differences in this criterion between the service options
		d. General assessment of potential to reduce the number of bicycle / vehicle collisions	Low potential	Low potential	Low potential	Unlikely to be significant differences in this criterion between the service options
	4.2 Enhance the security of transit users and of the corridor as a whole	a. Amount of added street lighting	Some improvement	Some improvement	Some improvement	The level of BRT investment in a corridor is related to the level of BRT service and could include adding street lighting improvements at crossings and signalized intersections where other BRT related improvements are made
		b. Amount of added lighting at / near transit stops	High improvements over existing conditions	Moderate to high Improvements over existing conditions	Moderate Improvements over existing conditions	BRT stations would increase lighting. Rating based on number of BRT stations.

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
		c. Extent and character of stop and station improvements	High improvements over existing conditions	Moderate to high Improvements over existing conditions	Moderate Improvements over existing conditions	Rating based on number of BRT stations.
Goal 5: Enhance other modes of travel	5.1 Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	a. Impact on current and future year intersection Level of Service (LOS)	Low impact	Low impact	Low impact	Unlikely to be significant differences in this criterion between the service options
		b. Impact on current and future year PM peak hour auto / truck travel times	Low impact	Low impact	Low impact	Unlikely to be significant differences in this criterion between the service options
	5.2 Improve bicycle and pedestrians connections along the corridor and to and from transit stops	a. General assessment of the interface with pedestrians and bicyclists	Low impact	Low impact	Low impact	Unlikely to be significant differences in this criterion between the service options
		b. Length of new or improved sidewalk in stop and station areas	High improvements over existing conditions	Moderate to high Improvements over existing conditions	Moderate Improvements over existing conditions	Rating based on number of BRT stations.
		c. Length of new or improved bike lanes in stop and station areas	High improvements over existing conditions	Moderate to high Improvements over existing conditions	Moderate Improvements over existing conditions	Rating based on number of BRT stations.

REVISED BRT SERVICE OPTIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1 Franklin-Main; Gateway-McVay**	**Option 2A Franklin-Main**	**Option 2B Gateway-McVay**	**Comments/Notes**
		d. Number of bicycle treatments in stop and station areas	High improvements over existing conditions	Moderate to high Improvements over existing conditions	Moderate Improvements over existing conditions	Rating based on number of BRT stations.

BRT Lane Configurations

Table D-4. BRT Lane Configurations Data

BRT LANE CONFIGURATIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
Goal 1: Improve corridor transit service	1.1 Improve transit travel time	a. Round trip pm peak travel time between select origins and destinations	No change over existing conditions	Low to Moderate improvement over existing conditions	Moderate to High improvement over existing conditions	Increased exclusivity reduces impact of traffic congestion. Improvements over existing conditions are anticipated to be different for Main Street and McVay Highway because of existing levels of congestion. Moderate to High improvement over existing conditions anticipated on Main Street and Low to Moderate improvement over existing conditions anticipated on McVay South except around the I-5 interchange where it could make a significant improvement over existing conditions.

BRT LANE CONFIGURATIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	No change over existing conditions	Low to Moderate improvement over existing conditions	Moderate to High improvement over existing conditions	Increased exclusivity reduces impact of traffic congestion. Improvements over existing conditions are anticipated to be different for Main Street and McVay Highway because of existing levels of congestion. Moderate to High improvement over existing conditions anticipated on Main Street and Low to Moderate improvement over existing conditions anticipated on McVay South except around the I-5 interchange where it could make a significant improvement over existing conditions.
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	Not affected	Not affected	Not affected	All options would travel along the same corridor and to the same destinations; there would be no difference in transfer requirements among these options.
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	Low improvements over existing conditions	Moderate improvements over existing conditions	High improvements over existing conditions	Ridership responds to faster travel time which results in higher ridership and increased transit mode share
		b. Transit mode share along the corridor	Low improvements over existing conditions	Moderate improvements over existing conditions	High improvements over existing conditions	Ridership responds to faster travel time which results in higher ridership and increased transit mode share

BRT LANE CONFIGURATIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
	1.5 Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	a. Population with ½ mile of transit stop	Not affected	Not affected	Not affected	All options would serve the same stations and provide BRT access to the same populations.
		b. Bicycle capacity at stops, stations, and on the bus	All options would increase capacity	All options would increase capacity	All options would increase capacity	All options would provide similar amenities at stations, such as bicycle racks. Buses would offer the same bicycle capacity.
		c. Number of park and ride spaces with direct transit access to major destinations	Not affected	Not affected	Not affected	No new park and ride lots are anticipated. All options serve existing park and ride lots.
		d. Assessment of accessibility by persons with mobility challenges	Moderate improvements over existing conditions	High improvements over existing conditions	High improvements over existing conditions but offset by greater crossing distances	For BRT service, the level of investment is linked to the level of lane exclusivity. Overall investment in accessibility treatments (such as ADA ramps) for persons with mobility challenges would be similar.
	1.6 Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status.	a. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	Improvement over existing conditions	Improvement over existing conditions	Improvement over existing conditions	Distribution of transit service and facility improvements such as ADA improvements would be similar for all options. Disproportionate impacts is unknown at this level of study.

		BRT LANE CONFIGURATIONS				
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
Goal 2: Meet current and future transit demand in a cost-effective manner	2.1 Control the increase in transit operating cost to serve the corridor	a. Cost per trip	Less improvement over existing conditions	Moderate improvement over existing conditions	More improvement over existing conditions	Higher exclusivity results in lower operating costs due to faster service and higher ridership, thereby reducing the operating cost per trip.
		b. Impact on LTD operating and maintenance costs	Less improvement over existing conditions	Moderate improvement over existing conditions	More improvement over existing conditions	Higher exclusivity results in lower operating costs due to faster service.
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	Likely high Small Starts rating	Likely high Small Starts rating	Likely moderate Small Starts rating	The cost of the High Exclusivity option may reduce the cost effectiveness rating
		d. Cost to local taxpayers	Moderate costs to taxpayers	Moderate costs to taxpayers	Moderate costs to taxpayers	The higher cost option would require a more substantial local match. Operating costs would be lower with greater exclusivity.
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	Increased capacity over existing conditions	Increased capacity over existing conditions	Increased capacity over existing conditions	All options assume the same service frequency and bus capacity
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Moderate benefit /cost ratio	Moderate benefit /cost ratio	Moderate benefit /cost ratio	Greater capital cost of more exclusivity offset by greater ridership

		BRT LANE CONFIGURATIONS				
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative	Low to Moderate potential for impacts	Moderate to High potential for impacts	Highest potential for impacts	ROW expansion increases potential impacts to natural and built environment resources. Potential impacts increase with greater ROW expansion.
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.1 Support development and redevelopment as planned in other adopted documents	a. Support for the overall BRT System Plan	Supports Plan	Supports Plan	Supports Plan	BRT System Plan proposes BRT on Main Street and McVay Highway but does not define the level of exclusivity; however, greater degree of exclusivity is more consistent with the Plan
		b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	Exceeds FTN frequency goals	Exceeds FTN frequency goals	Exceeds FTA frequency goals	BRT service is consistent with the FTN concept, which does not define the level of exclusivity
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	Not affected	Not affected	Not affected	All options would serve the same stations and, therefore, would have similar proximity to vacant and underutilized lands.
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	Lower potential for impacts	Moderate potential for impacts	Higher potential for impacts	Higher exclusivity options would require more property acquisition which could result in residential and parking displacements.

BRT LANE CONFIGURATIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		e. Local jobs created by project construction	Lower potential for job creation	Moderate potential for job creation	Higher potential for job creation	Higher exclusivity options would require more construction which would likely result in the hiring of more construction workers.
		f. Percentage of current and planned population within ½ mile of FTN stop	Not affected	Not affected	Not affected	All options would serve the same stations and, therefore, would serve the same populations.
		g. Percentage of current and planned employment within ½ mile of FTN stop	Not affected	Not affected	Not affected	All options would serve the same stations and, therefore, would serve the same populations.
	3.2 Enhance the aesthetics of the corridor to improve economic activity	a. Potential impact to street trees, landscaping	Lowest potential for impacts	Moderate potential for impacts	Highest potential for impacts	Higher exclusivity has more ROW impact
		b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	Supports adopted plans and programs - Low	Supports adopted plans and programs - Moderate	Supports adopted plans and programs - High	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. Main Street Vision Plan and other plans/programs identify visual elements that would be supported by BRT options while no adopted plans address visual elements for McVay South

			BRT LANE CONFIGURATIONS			
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		c. Potential impacts to the natural environment	Low to Moderate potential for beneficial effects 1	Moderate to High potential for beneficial effects 2	Highest potential for beneficial effects 3	Generally, environmental elements are not related to corridor aesthetics and improving economic activity. However, higher levels of exclusivity generally include higher levels of investment in aesthetic elements such as landscaping, lighting, and station area improvements.
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	Moderate	Moderate-Good	Good	More exclusivity provides greater opportunities for streetscape improvements since more of the street to be reconstructed.
	3.3 Coordinate transit improvements with other Main Street projects	a. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	Lower potential to support projects in adopted plans and programs	Moderate potential to support projects in adopted plans and programs l	Higher potential to support projects in adopted plans and programs	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support projects identified in the adopted Main Street plans and programs

BRT LANE CONFIGURATIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	Supports design elements in adopted plans and programs - Low	Supports design elements in adopted plans and programs - Moderate	Supports design elements in adopted plans and programs - High	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support design elements identified in the adopted Main Street plans and programs
	3.4 Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	a. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	Lower potential to support projects in adopted plans and programs	Moderate potential to support projects in adopted plans and programs l	Higher potential to support projects in adopted plans and programs	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support the proposed Franklin Boulevard / McVay Highway projects
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	Supports design elements in adopted plans and programs - low	Supports design elements in adopted plans and programs - moderate	Supports design elements in adopted plans and programs - high	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support design elements identified in proposed Franklin Boulevard / McVay Highway projects
	3.5 Minimize adverse impacts to existing businesses and industry	a. Impacts to businesses along the Corridor measured in number and total acreage of property acquired, parking displacements, and access impacts	Lower potential for impacts	Moderate potential for impacts	Higher potential for impacts	Higher exclusivity options would require more property acquisition which could result in business, and parking displacements and access impacts.

BRT LANE CONFIGURATIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		b. Impact on freight and delivery operations for Corridor businesses	Low level of improvement over existing	More improvement than low exclusivity	More improvement than moderate exclusivity	Higher level of exclusivity slightly reduces potential freight conflicts with transit
Goal 4: Enhance the safety and security of the corridor	4.1 Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	a. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	Best balance between crossings and crossing distance	Moderate balance between crossings and crossing distance	Least balance between crossings and crossing distance	Exclusivity options will enhance access similarly for all options. Higher exclusivity requires greater crossing distances which reduces safety.
		b. General assessment of safety for persons with mobility challenges	Moderate improvements over existing conditions	High improvements over existing conditions	Moderate improvements over existing conditions	BRT includes improved sidewalks which could improve access for persons with mobility challenges; however greater crossing distances can offset some benefits
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	Improved access and safety over existing conditions	Better improvement over low exclusivity	Less improvement than moderate exclusivity	Higher level of exclusivity could increase pedestrian/vehicle conflicts because of wider crossing distances
		d. General assessment of potential to reduce the number of bicycle / vehicle collisions	Low level of improvement over existing conditions	Better improvement over existing conditions	Low level of improvement over existing conditions	Higher level of exclusivity could increase bicycle/transit vehicle conflicts offsetting other improvements or benefits

BRT LANE CONFIGURATIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
	4.2 Enhance the security of transit users and of the corridor as a whole	a. Amount of added street lighting	Low level of improvement over existing conditions	Low to Moderate level of improvement over existing conditions	Moderate level of improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service and lane exclusivity which could include adding street lighting improvements at crossings and signalized intersections where other BRT related improvements are made
		b. Amount of added lighting at / near transit stops	Improvement over existing conditions	Improvement over existing conditions	Improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service and lane exclusivity. Adding BRT stations would increase lighting
		c. Extent and character of stop and station improvements	Improvement over existing conditions	Improvement over existing conditions	Improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service and lane exclusivity. Adding BRT stations would include stop and station improvements
Goal 5: Enhance other modes of travel	5.1 Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	a. Impact on current and future year intersection Level of Service (LOS)	Lower effect on reducing delay	More effect on reducing delay	Higher effect on reducing delay	Removal of transit vehicles reduces potential delay impacts
		b. Impact on current and future year PM peak hour auto / truck travel times	Lower effect on reducing delay	More effect on reducing delay	Higher effect on reducing delay	Removal of transit vehicles reduces potential delay impacts

		BRT LANE CONFIGURATIONS				
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		a. General assessment of the interface with pedestrians and bicyclists	Higher improvement over existing conditions	Moderate improvement over existing conditions	Lower improvement over existing conditions	Higher level of exclusivity could increase bicycle and pedestrian conflicts offsetting other improvements or benefits
	5.2 Improve bicycle and pedestrians connections along the corridor and to and from transit stops	b. Length of new or improved sidewalk in stop and station areas	Low level of improvement over existing conditions	Moderate level of improvement over existing conditions	High level of improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service and exclusivity. New or improved sidewalks are included when BRT is implemented and are coordinated with the local agency's bicycle and pedestrian planned improvements programs. BRT stations would include new and improved pedestrian access. Sidewalks improvements would increase with higher levels of exclusivity

BRT LANE CONFIGURATIONS						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		c. Length of new or improved bike lanes in stop and station areas	Low level of improvement over existing conditions	Moderate level of improvement over existing conditions	High level of improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service and exclusivity. New or improved bike lanes are included when BRT is implemented and are coordinated with the local agency's bicycle and pedestrian planned improvements programs. Bike lane improvements would increase with higher levels of exclusivity.
		d. Number of bicycle treatments in stop and station areas	Moderate level of improvement over existing conditions	Moderate level of improvement over existing conditions	High level of improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service and exclusivity. Bicycle treatments at stops and station areas are included when BRT is implemented and are coordinated with the local agency's bicycle and pedestrian planned improvements programs. Bike treatments improvements could include bike racks or lockers and would increase with higher levels of exclusivity.

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Attachment E: Environmental Data Tables

BRT Routing: McVay South Environmental Data

Table E-1. BRT Routing Options: McVay South Environmental Data

BRT ROUTING OPTIONS: MCVAY SOUTH ENVIRONMENTAL DATA					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
Goal 2: Meet current and future transit demand in a cost-effective manner	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative			
		Biological Resources	No effect anticipated	Some potential adverse impacts	Tree impact potential is greater along Old Franklin; Potential rare plant habitat is along Old Franklin
		Fish Ecology	No effect anticipated	Some potential adverse impacts	Stormwater from new impervious would need to be treated to SLOPES V standards
		Wetlands	No effect anticipated	Some potential adverse impacts	Regulated wetlands and wetland ditches along Old Franklin
		Water Resources	Potential for increasing stormwater runoff	Potential for floodplain impacts and increasing stormwater runoff	Floodplains exist near the riverfront. Increasing ROW for BRT improvements would increase stormwater runoff.
		Hazardous Materials	Higher potential for hazardous materials related to gasoline stations	Less potential for hazardous materials	The potential for hazardous materials is higher along McVay Highway because of the presence of gasoline stations.
		Geology/Seismic	West of I-5 has steeper slopes	Fewer slopes	The soils along the McVay Highway Segment are generally courser gravel with some sand and silt and marine-deposited sediment. West of Interstate 5 are steeper slopes and rock outcroppings. Differences related to geology (construction and operation of BRT) are negligible,

BRT ROUTING OPTIONS: MCVAY SOUTH ENVIRONMENTAL DATA					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
		Parks/4(f)/6(f)	No existing or proposed parks along routing	Greater access to proposed Riverfront Linear Park	There are no existing parks in this area; however, the Willamalane Parks Plan proposes a multi-use linear path along the riverfront from Glenwood to Seavey Loop area
		Cultural/Sec 106 Resources	Low potential for impacts	Low potential for impacts	Few eligible historic resources are present along either route (Southern Pacific Railroad, railroad bridges and Willamette River bridges are eligible historic resources in the area). Previously unidentified archaeological resources may be encountered outside the existing ROW.
		Visual/Aesthetic	Improvement over existing conditions	Improvement over existing conditions	BRT includes greater level of investment in urban design elements, landscaping, and lighting. Improvements would be similar for both options
		Noise/Vibration	Low potential for impacts	Low potential for impacts	The BRT system in the northern end of the corridor will pass by several manufactured home parks, and there is a potential for noise impacts; however, there is little potential for impacts in the south end of the McVay segment
		Air Quality	Low potential for impacts	Low potential for impacts	There are no air quality impacts predicted under the BRT Routing McVay South

BRT ROUTING OPTIONS: MCVAY SOUTH ENVIRONMENTAL DATA					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	1	-1	Both options have the potential for beneficial effects. However, there is a greater potential for impacts to natural resources along Old Franklin including protected species.
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.2 Enhance the aesthetics of the corridor to improve economic activity	c. Potential impacts to the natural environment			
		Biological Resources	No effect	No effect	As it relates to corridor aesthetics and improving economic activity, no biological resources would be affected by these options, except for trees which are addressed under 3.2A
		Fish Ecology	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Wetlands	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Water Resources	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Hazardous Materials	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Geology/Seismic	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity

BRT ROUTING OPTIONS: MCVAY SOUTH ENVIRONMENTAL DATA					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: McVay Hwy (west side of I-5)**	**Option 2: Old Franklin (east side of I-5)**	**Comment/Notes**
		Parks/4(f)/6(f)	No effect	No effect	Although Old Franklin would provide greater access to proposed parks, no effects on aesthetics or economics is anticipated
		Cultural/Sec 106 Resources	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Visual/Aesthetic	Potential improvement over existing conditions	Potential improvement over existing conditions	BRT includes greater level of investment in urban design elements, landscaping, and lighting that could enhance the aesthetics of the corridor and potentially contribute to increased economic activity. Improvements would be similar for both options
		Noise/Vibration	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Air Quality	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	Neutral	Neutral	Few of the environmental elements are related to aesthetics and economic activity. There is potential for some improvements that may enhance aesthetics along the corridor but the improvements over existing conditions would be similar.

Enhanced Bus Options Environmental Data

Table E-2. Enhanced Bus Options Environmental Data

ENHANCED BUS OPTIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
Goal 2: Meet current and future transit demand in a cost-effective manner	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative				
		Biological Resources	No anticipated impacts	No anticipated impacts	No anticipated impacts	Tree impacts are the greatest along Main Street
		Fish Ecology	No anticipated impacts	No anticipated impacts	No anticipated impacts	Stormwater runoff from new impervious surface would need to be treated prior to discharge
		Wetlands	No anticipated impacts	No anticipated impacts	No anticipated impacts	Wetland impact potential is low
		Water Resources	No anticipated impacts to water quality or floodplains	No anticipated impacts to water quality or floodplains	No anticipated impacts to water quality or floodplains, Increased bus service may introduce increased risk of pollutants to stormwater runoff	Would not require expanding ROW
		Hazardous Materials	No anticipated impacts	No anticipated impacts	No anticipated impacts	Would not require expanding ROW
		Geology/Seismic	No anticipated impacts	No anticipated impacts	No anticipated impacts	Would not require expanding ROW
		Parks/4(f)/6(f)	No anticipated impacts	No anticipated impacts	No anticipated impacts	Would not require expanding ROW

ENHANCED BUS OPTIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
		Cultural/Sec 106 Resources	No anticipated impacts	No anticipated impacts	No anticipated impacts	Anticipate no impact to historic or archaeological resources with this option as lane configurations and improvements will be made within existing ROW
		Visual/Aesthetic	No anticipated impacts	No anticipated impacts	No anticipated impacts	Would include improvements to station areas
		Noise/Vibration	Low potential for noise impacts	Low potential for noise impacts	Low potential for noise impacts	Using enhanced bus options is not predicted to increase noise levels in most areas.
		Air Quality	No anticipated impacts	No anticipated impacts	No anticipated impacts	No air impacts predicted
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	No anticipated impacts	No anticipated impacts	No anticipated impacts	Although the options would include improvements to station areas because no expansion of the ROW is required the impacts are anticipated to minimal.
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.2 Enhance the aesthetics of the corridor to improve economic activity	c. Potential impacts to the natural environment				
		Biological Resources	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity except for trees which is addressed under 3.2A
		Fish Ecology	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity

ENHANCED BUS OPTIONS ENVIRONMENTAL DATA						
GOAL	OBJECTIVE	CRITERION	Option 1: Main Street	Option 2: McVay Highway	Option 3: Main Street Express	Comments/Notes
		Wetlands	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Water Resources	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Hazardous Materials	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Geology/Seismic	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Parks/4(f)/6(f)	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Cultural/Sec 106 Resources	No effect	No effect	No effect	No effect to historic resources is anticipated with this option as lane configurations and improvements will be confined to existing ROW
		Visual/Aesthetic	Low potential for improvement over existing conditions	Low potential for improvement over existing conditions	Low potential for improvement over existing conditions	Would include some improvements to station areas

ENHANCED BUS OPTIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Main Street**	**Option 2: McVay Highway**	**Option 3: Main Street Express**	**Comments/Notes**
		Noise/Vibration	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Air Quality	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	No effect	No effect	No effect	Low potential for any enhanced bus options to affect corridor aesthetics and improve economic activity.

BRT Service Options Environmental Data

Table E-3. BRT Service Options Environmental Data

BRT SERVICE OPTIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Franklin-Main; Gateway-McVay**	**Option 2A: Franklin-Main**	**Option 2B: Gateway-McVay**	**Comments/Notes**
Goal 2: Meet current and future transit demand in a cost-effective manner	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative				
		Biological Resources	Neutral	Neutral	Neutral	Tree impacts are the greatest along Main Street. However, service options not likely to affect trees.
		Fish Ecology	Neutral	Neutral	Neutral	Stormwater runoff from new impervious surface would need to be treated prior to discharge
		Wetlands	Neutral	Neutral	Neutral	Wetland impact potential is greatest along Old Franklin
		Water Resources	Neutral	Neutral	Neutral	No differences in water quality impacts between two options
		Hazardous Materials	Neutral	Neutral	Neutral	No differences in hazardous materials conditions between options
		Geology/Seismic	Neutral	Neutral	Neutral	No differences in geologic or seismic conditions between options

BRT SERVICE OPTIONS ENVIRONMENTAL DATA						
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay	Comments/Notes
		Parks/4(f)/6(f)	Increased and/ or improved access	Increased and/ or improved access	Increased and/ or improved access	Increased and/or improved access to existing and proposed parks would result from all options. Beneficial effects are similar
		Cultural/Sec 106 Resources	Neutral	Neutral	Neutral	There are approximately 50 eligible historic resources that must be considered for potential impacts. Potential impacts to historic resources include: (1) loss of parking and access to historic resources in commercial areas (2) partial acquisitions and strip takes could adversely affect historic resources if alterations to the resource are required. However, there is no difference in Section 106 resource impacts between the service options.

BRT SERVICE OPTIONS ENVIRONMENTAL DATA						
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay	Comments/Notes
		Visual/Aesthetic	Neutral	Neutral	Neutral	No differences in visual / aesthetic effects between options –options will include same lighting, landscaping, and urban design elements
		Noise/Vibration	Moderate potential for impacts if roadway is widened	Moderate potential for impacts if roadway is widened	Moderate potential for impacts if roadway is widened	Potential impacts due to roadway improvements
		Air Quality	Neutral	Neutral	Neutral	There is no difference in the potential impacts or beneficial effects of the options
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	Neutral	Neutral	Neutral	There is no difference in the potential impacts or beneficial effects of the service options
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.2 Enhance the aesthetics of the corridor to improve economic activity	c. Potential impacts to the natural environment				
		Biological Resources	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Fish Ecology	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity

BRT SERVICE OPTIONS ENVIRONMENTAL DATA						
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay	Comments/Notes
		Wetlands	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Water Resources	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Hazardous Materials	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Geology/Seismic	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Parks/4(f)/6(f)	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity

BRT SERVICE OPTIONS ENVIRONMENTAL DATA						
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay	Comments/Notes
		Cultural/Sec 106 Resources	Neutral	Neutral	Neutral	There are approximately 50 eligible historic resources that must be considered for potential impacts. Potential impacts to historic resources include: (1) loss of parking and access to historic resources in commercial areas (2) partial acquisitions and strip takes could adversely affect historic resources if alterations to the resource are required. However, there is no difference in Section 106 resource impacts between the service options.
		Visual/Aesthetic	Improvements over existing conditions	Improvements over existing conditions	Improvements over existing conditions	As it relates to corridor aesthetics and improving economic activity, options would include the same station area improvements (lighting, landscaping, urban design elements)

BRT SERVICE OPTIONS ENVIRONMENTAL DATA						
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2A: Franklin-Main	Option 2B: Gateway-McVay	Comments/Notes
		Noise/Vibration	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Air Quality	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	Neutral	Neutral	Neutral	For most of the environmental elements, there is no relationship to aesthetics and economic activity. However, all options would include station area improvements (lighting, landscaping, urban design elements) but the effect would be similar.

BRT Lane Configurations Environmental Data

Table E-4. BRT Lane Configurations Environmental Data

BRT LANE CONFIGURATIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
Goal 2: Meet current and future transit demand in a cost-effective manner	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative				
		Biological Resources	No to Low potential for adverse impacts	Low to Moderate potential for adverse impacts	Highest potential for adverse impacts	Tree impacts and potential rare plant habitat impacts increase as the roads are widened
		Fish Ecology	No to Low potential for adverse impacts	Low to Moderate potential for adverse impacts	Highest potential for adverse impacts	Stormwater runoff from new impervious surface would need to be treated prior to discharge
		Wetlands	No to Low potential for adverse impacts	Low to Moderate potential for adverse impacts	Highest potential for adverse impacts	Wetland impact potential increases as the roads are widened
		Water Resources	Lowest potential for adverse impacts	Moderate potential for adverse impacts	Highest potential for adverse impacts	ROW expansion increases potential impacts to stormwater runoff, floodplains and receiving water bodies. Potential impacts increase with greater ROW expansion.
		Hazardous Materials	Lowest potential for adverse impacts	Moderate potential for adverse impacts	Highest potential for adverse impacts	ROW expansion increases potential discovery of hazardous materials. Potential impacts increase with greater ROW expansion.

BRT LANE CONFIGURATIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		Geology/Seismic	Lowest potential for adverse impacts	Moderate potential for adverse impacts	Highest potential for adverse impacts	ROW expansion increases potential impacts construction in areas of steep slopes and other unsuitable geologic conditions. Potential impacts increase with greater ROW expansion.
		Parks/4(f)/6(f)	Lowest potential for adverse impacts	Moderate potential for adverse impacts	Highest potential for adverse impacts	ROW expansion increases potential impacts to park resources. Potential impacts increase with greater ROW expansion.

BRT LANE CONFIGURATIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		Cultural/Sec 106 Resources	Low potential for adverse impacts	Low to Moderate potential for adverse impacts	Medium to High potential for adverse impacts	There are approximately 50 identified eligible contributing resources. Although there are a large number of historic resources along the route, the majority are non-contributing (not eligible) resources. High exclusivity could result in a moderate to high impact due to greater ROW needs. Potential impacts to historic resources include, loss of parking and access to historic resources in commercial areas, partial acquisitions and street takes could adversely affect historic resources if alterations to the resource are required Previously unidentified archaeological resources may be encountered outside the existing ROW.

BRT LANE CONFIGURATIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		Visual/Aesthetic	Low to moderate potential for investment in urban design elements and potential for adverse impacts to mature street trees	Moderate to high potential for investment in urban design elements and potential for adverse impacts to mature street trees	Highest potential for investment in urban design elements and potential for adverse impacts to mature street trees	Higher levels of exclusivity generally include higher levels of investment in aesthetic elements such as landscaping, lighting, and station area improvements. Expanding ROW can increase removal of mature trees.
		Noise/Vibration	Low to Moderate potential for impacts	Moderate to High potential for impacts	Highest potential for impacts	Potential impacts due to roadway improvements
		Air Quality	No impacts anticipated	No impacts anticipated	No impacts anticipated	No impacts to air quality are anticipated
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	Low to Moderate potential for impacts	Moderate to High potential for impacts	Highest potential for impacts	ROW expansion increases potential impacts to natural resources. Potential impacts increase with greater ROW expansion.
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.2 Enhance the aesthetics of the corridor to improve economic activity	c. Potential impacts to the natural environment				
		Biological Resources	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity, except for trees which are addressed under 3.2A
		Fish Ecology	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity

BRT LANE CONFIGURATIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		Wetlands	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Water Resources	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Hazardous Materials	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Geology/Seismic	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Parks/4(f)/6(f)	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Cultural/Sec 106 Resources	Low potential for impacts	Moderate potential for impacts	High potential for impacts	As is relates to aesthetics and economic activity, there is potential for some adverse effect from ROW widening. However, federal regulations require greater efforts to protect Section 106 resources.

BRT LANE CONFIGURATIONS ENVIRONMENTAL DATA						
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Low Exclusivity**	**Option 2: Moderate Exclusivity**	**Option 3: High Exclusivity**	**Comments/Notes**
		Visual/Aesthetic	Low to moderate potential for investment in urban design elements	Moderate to high potential for investment in urban design elements	Highest potential for investment in urban design elements	Higher levels of exclusivity generally include higher levels of investment in aesthetic elements such as landscaping, lighting, and station area improvements.
		Noise/Vibration	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Air Quality	No effect	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	Low to Moderate potential for beneficial effects	Moderate to High potential for beneficial effects	Highest potential for beneficial effects	Generally, environmental elements are not related to corridor aesthetics and improving economic activity. However, higher levels of exclusivity generally include higher levels of investment in aesthetic elements such as landscaping, lighting, and station area improvements.

Attachment F: Ratings / Data Tables for Original BRT Service Options

The findings for screening the original BRT Service options are summarized in Table F-1. Data associated with the findings are included in the Table F-2. In the table, **bolded criteria** indicate criteria potentially most impacted by these options.

Screening Summary – Original BRT Service Options

Table F-1. Screening Summary Original BRT Service Options

		BRT Service Options	
		Transit Solutions	
Goals and Objectives	**Evaluation Criteria** *[**Bolded criteria** indicate criteria most impacted by these options]*	**Franklin-Main; Gateway-McVay**	**Franklin-Gateway; Main; McVay**
Goal 1: Improve corridor transit service			
Objective 1.1: Improve transit travel time	**A. Round trip transit pm peak travel time between select origins and destinations**	3	2
Objective 1.2: Improve transit service reliability	A. On-time performance (no more than 4 minutes late) of transit service	3	3
Objective 1.3: Provide convenient transit connections that minimizes the need to transfer	A. Number of transfers required between heavily used origin-destination pairs	3	1
Objective 1.4: Increase transit ridership and mode share in the corridor	**A. Average weekday boardings on Corridor routes**	3	2
	B. Transit mode share along the corridor	3	2
Objective 1.5: Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	A. Population with ½ mile of transit stop	-1	-1
	B. Bicycle capacity at stops, stations, and on the bus	2	2
	C. Number of park and ride spaces with direct transit access to major destinations	0	0
	D. Assessment of accessibility by persons with mobility challenges	1	1
Objective 1.6: Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status	A. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	1	1

BRT Service Options

Goals and Objectives	Evaluation Criteria *[**Bolded criteria** indicate criteria most impacted by these options]*	Transit Solutions Franklin-Main; Gateway-McVay	Transit Solutions Franklin-Gateway; Main; McVay
	Scoring Subtotal Goal 1	**18**	**13**
Goal 2: Meet current and future transit demand in a cost-effective manner			
Objective 2.1: Control the increase in transit operating cost to serve the corridor	**A. Cost per trip**	1	1
	B. Impact on LTD operating and maintenance costs	-1	-1
	C. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	1	1
	D. Cost to local taxpayers	-1	-1
Objective 2.2: Increase transit capacity to meet current and projected ridership demand	A. Capacity of transit service relative to the current and projected ridership	3	3
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	**A. Benefit/cost assessment of planned improvements**	1	0
Objective 2.4: Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	**A. Results of screening-level assessment of environmental impacts of transit solutions**	0	0
	Scoring Subtotal Goal 2	**4**	**3**
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor			
Objective 3.1: Support development and redevelopment as planned in other adopted documents	A. Support for the overall BRT System Plan	3	2
	B. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	3	3
	C. Amount of vacant and underutilized land within ½ miles of stops/stations	0	0
	D. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	0	0
	E. Local jobs created by project construction	3	3
	F. Percentage of current and planned population	3	3

BRT Service Options			
		Transit Solutions	
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Franklin-Main; Gateway-McVay**	**Franklin-Gateway; Main; McVay**
	within ½ mile of FTN stop		
	G. Percentage of current and planned employment within ½ mile of FTN stop	3	3
Objective 3.2: Enhance the aesthetics of the corridor to improve economic activity	A. Potential impact to street trees, landscaping	-1	-1
	B. Number of transit-related visual elements identified in adopted plans that would be implemented by transit solutions	2	2
	C. Potential impacts to the natural environment	0	0
	D. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	2	2
Objective 3.3: Coordinate transit improvements with other Main Street projects	A. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	3	3
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	3	3
Objective 3.4: Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	A. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	3	3
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	3	3
Objective 3.5: Minimize adverse impacts to existing businesses and industry	A. Impacts to businesses along the Corridor measured in number and total acres of properties acquired, parking displacements, and access impacts.	0	0

BRT Service Options			
		Transit Solutions	
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Franklin-Main; Gateway-McVay**	**Franklin-Gateway; Main; McVay**
	B. Impact on freight and delivery operations for Corridor businesses	0	0
	Scoring Subtotal Goal 3	**20**	**19**
Goal 4: Enhance the safety and security of the corridor			
Objective 4.1: Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	A. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	2	2
	B. General assessment of safety for persons with mobility challenges	1	1
	C. General assessment of potential to reduce the number of pedestrian / vehicle collisions	0	0
	D. General assessment of potential to reduce the number of bicycle / vehicle collisions	0	0
Objective 4.2: Enhance the security of transit users and of the corridor as a whole	A. Amount of added street lighting	2	2
	B. Amount of added lighting at / near transit stops	3	3
	C. Extent and character of stop and station improvements	3	3
	Scoring Subtotal Goal 4	**11**	**11**
Goal 5: Enhance other modes of travel			
Objective 5.1: Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	A. Impact on current and future year intersection Level of Service (LOS)	0	0
	B. Impact on current and future year PM peak hour auto / truck travel times	0	0
Objective 5.2: Improve bicycle and pedestrians connections along the corridor and to and from transit stops	A. General assessment of the interface with pedestrians and bicyclists	1	1
	B. Length of new or improved sidewalk in stop and station areas	3	3
	C. Length of new or improved bike lanes in stop and station areas	3	3
	D. Number of bicycle treatments in stop and station	3	3

BRT Service Options			
		Transit Solutions	
Goals and Objectives	Evaluation Criteria *[**Bolded criteria** indicate criteria most impacted by these options]*	Franklin-Main; Gateway-McVay	Franklin-Gateway; Main; McVay
	areas		
	Scoring Subtotal Goal 5	**10**	**10**
SCORING TOTAL		**63**	**56**

Ratings Scale: +3=Most Effective / Potential Beneficial Effects, 0=Neutral, 1=Least Effective / Potential Adverse Effects

Bolded criteria are most impacted by these options

Original BRT Service Options Data Tables

Table F-2. BRT Service Options Data

			BRT SERVICE OPTIONS		
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
Goal 1: Improve corridor transit service	1.1 Improve transit travel time	a. Round trip pm peak travel time between select origins and destinations	High Improvement over existing	Improvements over existing	Requirement for transfer on north-south travel reduces travel time improvements for Option 2
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	High Improvement over existing	High Improvement over existing	BRT improves service reliability
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	Improvement over existing	Moderate improvement over existing	Franklin-Main connection reduces transfer requirements. Option 2 requires more transfers than Option 1.
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	17% increase in corridor ridership	14-16% ridership increase	Franklin-Main has 12% increase; Gateway-McVay has 4% increase; both corridors have 17% increase.

		BRT SERVICE OPTIONS			
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Franklin-Main; Gateway-McVay**	**Option 2: Franklin-Gateway; Main; McVay**	**Comments/Notes**
		b. Transit mode share along the corridor	17% increase	14-16% increase	Mode split tracks with ridership
	1.5 Improve access of other modes such as walking, bicycling, and auto (park and ride) to transit	a. Population with ½ mile of transit stop	Reduction compared to existing	Reduction compared to existing	Both options would serve fewer stops than existing service. Options have identical stop locations
		b. Bicycle capacity at stops, stations, and on the bus	Improvement compared to existing	Improvement compared to existing	BRT stations include bike storage. Both options have the same bicycle capacity at stations and on buses
		c. Number of park and ride spaces with direct transit access to major destinations	Not affected	Not affected	Both options would travel along the same corridor and to the same destinations; there would be no discernable difference among these options.
		d. Assessment of accessibility by persons with mobility challenges	Improvement compared to existing	Improvement compared to existing	BRT improves accessibility, though stops are farther apart.
	1.6 Enhance equitable transit for users without regard to race, color, religion, sex, sexual orientation, national origin, marital status, age, disability, or economic status.	a. Distribution of transit service and facility improvements that avoid disproportionate impacts on those populations along the Corridor.	Improvement compared to existing	Improvement compared to existing	Both options would result in ADA improvements and transit service enhancements.
Goal 2: Meet current and future transit demand in a cost-effective manner	2.1 Control the increase in transit operating cost to serve the corridor	a. Cost per trip			
		b. Impact on LTD operating and maintenance costs	Likely increase in operating costs	Likely increase in operating costs	Franklin-Main line likely to reduce operating costs due to faster service, but more than offset by higher operating costs on McVay Segment due to increased frequency of service on that segment

			BRT SERVICE OPTIONS		
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	Likely meet FTA Small Starts requirements	Likely meet FTA Small Starts requirements	BRT treatments of similar concept have performed well under FTA's Small Starts requirements for cost-effectiveness. Due to higher ridership, Main Street likely to perform better relative to FTA Small Starts criteria.
		d. Cost to local taxpayers	Moderate increase	Moderate increase	Because BRT treatments of similar concept qualify for Federal Funding, the cost to local taxpayers would be lower than other investments. Operating costs on McVay Segment would increase
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	Improved compared to existing	Improved compared to existing	BRT service increases capacity due to greater service frequency and larger bus. No difference between options.
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Benefit cost of Franklin-Main higher than Gateway-McVay due to higher ridership	Benefit cost of Franklin-Main higher than McVay due to higher ridership	Need for additional data to determine benefit/cost.
	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative	Neutral	Neutral	There is no difference in the potential impacts or beneficial effects of the two service options
revitalization and land use	3.1 Support development and redevelopment as	a. Support for the overall BRT System Plan	Supports Plan - better	Supports Plan	BRT System Plan proposes BRT on Main Street and McVay Highway and assumes Gateway-McVay connection

		BRT SERVICE OPTIONS			
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
	planned in other adopted documents	b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	Supports Plan	Supports Plan	BRT service options are consistent within FTN concept
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	Not affected	Not affected	BRT options would serve the same stations and, therefore, would have similar proximity to vacant and underutilized lands.
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	Not affected	Not affected	Acquisitions and displacements not impacted by the service option decision.
		e. Local jobs created by project construction	Not affected	Not affected	Construction costs (which translates to jobs) not impacted by service options.
		f. Percentage of current and planned population within ½ mile of FTN stop	Not affected	Not affected	BRT options would serve the same stations and, therefore, would serve the same populations.
		g. Percentage of current and planned employment within ½ mile of FTN stop	Not affected	Not affected	BRT options would serve the same stations and, therefore, would serve the same employers.
	3.2 Enhance the aesthetics of the corridor to improve economic activity	a. Potential impact to street trees, landscaping	Not affected	Not affected	ROW not impacted by the service option decision
		b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	Supports adopted plans and programs	Supports adopted plans and programs	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. Main Street Vision Plan and other plans/programs identify visual elements that would be supported by BRT options while no adopted plans address visual elements for McVay South

			BRT SERVICE OPTIONS		
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
		c. Potential impacts to the natural environment	Neutral	Neutral	For most of the environmental elements, there is no relationship to aesthetics and economic activity. However, both options would include station area improvements (lighting, landscaping, urban design elements) but the effect would be similar.
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	Good	Good	BRT options provide opportunities for streetscape enhancements.
	3.3 Coordinate transit improvements with other Main Street projects	a. Capability of transit improvement to coordinate with other Main Street projects identified in adopted plans	Supports projects in adopted plans and programs	Supports projects in adopted plans and programs	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support projects identified in the adopted Main Street plans and programs
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	Supports design elements in adopted plans and programs	Supports design elements in adopted plans and programs	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support design elements identified in the adopted Main Street plans and programs

		BRT SERVICE OPTIONS			
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Franklin-Main; Gateway-McVay**	**Option 2: Franklin-Gateway; Main; McVay**	**Comments/Notes**
	3.4 Coordinate transit improvements with other Franklin Boulevard / McVay Highway projects	a. Capability of transit improvement to coordinate with other Franklin Boulevard / McVay Highway projects identified in adopted plans	Supports projects in adopted plans and programs	Supports projects in adopted plans and programs	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support the proposed Franklin Boulevard / McVay Highway projects
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	Supports design elements in adopted plans and programs	Supports design elements in adopted plans and programs	For BRT service, investment in transit-related visual elements is linked to the level of BRT service. BRT improvements would support design elements identified in proposed Franklin Boulevard / McVay Highway projects
	3.5 Minimize adverse impacts to existing businesses and industry	a. Impacts to businesses along the Corridor measured in number and total acreage of property acquired, parking displacements, and access impacts	Not affected	Not affected	Acquisitions and displacements not impacted by the service option decision.
		b. Impact on freight and delivery operations for Corridor businesses	Low impact	Llow impact	Freight not affected by transit service options
Goal 4: Enhance the safety and security of the corridor	4.1 Improve the safety of pedestrians and bicyclists accessing transit and crossing Main Street	a. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	Not affected	Not affected	BRT options would serve the same stations and, therefore, would have similar access issues
		b. General assessment of safety for persons with mobility challenges	Improved access	Improved access	BRT includes improved sidewalks which could improve access for persons with mobility challenges for both options

		BRT SERVICE OPTIONS			
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	L (low level of improvement)	L (low level of improvement)	Unlikely to be significant differences in this criterion between the service options
		d. General assessment of potential to reduce the number of bicycle / vehicle collisions	L (low level of improvement)	L (low level of improvement)	Unlikely to be significant differences in this criterion between the service options
	4.2 Enhance the security of transit users and of the corridor as a whole	a. Amount of added street lighting	Low to Moderate level of improvement over existing conditions	Low to Moderate level of improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service and could include adding street lighting improvements at crossings and signalized intersections where other BRT related improvements are made
		b. Amount of added lighting at / near transit stops	Low to Moderate level of improvement over existing conditions	Low to Moderate level of improvement over existing conditions	Adding BRT stations would increase lighting, however, there is no difference between options because same number of stations for both options
		c. Extent and character of stop and station improvements	Low to Moderate level of improvement over existing conditions	Low to Moderate level of improvement over existing conditions	Adding BRT stations would include stop and station improvements; however, there is no difference between options because same number of stations for both options
Goal 5: Enhance other modes of travel	5.1 Improve transit operations in a way that is mutually beneficial to vehicular traffic flow around transit stops and throughout the corridor	a. Impact on current and future year intersection Level of Service (LOS)	L (low impact)	L (low impact)	Unlikely to be significant differences in this criterion between the service options
		b. Impact on current and future year PM peak hour auto / truck travel times	L (low impact)	L (low impact)	Unlikely to be significant differences in this criterion between the service options

		BRT SERVICE OPTIONS			
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Franklin-Main; Gateway-McVay**	**Option 2: Franklin-Gateway; Main; McVay**	**Comments/Notes**
		a. General assessment of the interface with pedestrians and bicyclists	L (low impact)	L (low impact)	Unlikely to be significant differences in this criterion between the service options
	5.2 Improve bicycle and pedestrians connections along the corridor and to and from transit stops	b. Length of new or improved sidewalk in stop and station areas	Improvement over existing conditions but with limited benefit in the near term	Improvement over existing conditions but with limited benefit in the near term	The level of BRT investment in a corridor is related to the level of BRT service. New or improved sidewalks are included when BRT is implemented and are coordinated with the local agency's bicycle and pedestrian planned improvements programs. BRT stations would include new and improved pedestrian access. Sidewalks improvements would be similar for both options
		c. Length of new or improved bike lanes in stop and station areas	Low to Moderate improvement over existing conditions	Low to Moderate improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service. New or improved bike lanes are included when BRT is implemented and are coordinated with the local agency's bicycle and pedestrian planned improvements programs. Bike lane improvements would be similar for both options.

BRT SERVICE OPTIONS					
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
		d. Number of bicycle treatments in stop and station areas	Low to Moderate improvement over existing conditions	Low to Moderate improvement over existing conditions	The level of BRT investment in a corridor is related to the level of BRT service. Bicycle treatments at stops and station areas are included when BRT is implemented and are coordinated with the local agency's bicycle and pedestrian planned improvements programs. Bike treatments improvements would be similar for both options and could include bike racks or lockers.

BRT Service Options Environmental Data

Table F-3. BRT Service Options Environmental Data

BRT SERVICE OPTIONS ENVIRONMENTAL DATA					
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
Goal 2: Meet current and future transit demand in a cost-effective manner	2.4 Implement corridor improvements that minimize impacts to the environment and, where possible, enhance the environment	a. Results of screening-level assessment of environmental impacts of alternative			
		Biological Resources	Neutral	Neutral	Tree impacts are the greatest along Main Street
		Fish Ecology	Neutral	Neutral	Stormwater runoff from new impervious surface would need to be treated prior to discharge
		Wetlands	Neutral	Neutral	Wetland impact potential is greatest along Old Franklin

BRT SERVICE OPTIONS ENVIRONMENTAL DATA					
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
		Water Resources	Neutral	Neutral	No differences in water quality impacts between two options
		Hazardous Materials	Neutral	Neutral	No differences in hazardous materials conditions between two options
		Geology/Seismic	Neutral	Neutral	No differences in geologic or seismic conditions between two options
		Parks/4(f)/6(f)	Increased and/ or improved access	Increased and/ or improved access	Increased and/or improved access to existing and proposed parks would result from both options. Beneficial effects are similar
		Cultural/Sec 106 Resources	Neutral	Neutral	There are approximately 50 eligible historic resources that must be considered for potential impacts. Potential impacts to historic resources include: (1) loss of parking and access to historic resources in commercial areas (2) partial acquisitions and strip takes could adversely affect historic resources if alterations to the resource are required. However, there is no difference in Section 106 resource impacts between the two service options.
		Visual/Aesthetic	Neutral	Neutral	No differences in visual / aesthetic effects between two options – both options will include same lighting, landscaping, and urban design elements

BRT SERVICE OPTIONS ENVIRONMENTAL DATA					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Franklin-Main; Gateway-McVay**	**Option 2: Franklin-Gateway; Main; McVay**	**Comments/Notes**
		Noise/Vibration	Moderate potential for impacts if roadway is widened	Moderate potential for impacts if roadway is widened	Potential impacts due to roadway improvements
		Air Quality	Neutral	Neutral	There is no difference in the potential impacts or beneficial effects of the two options
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	Neutral	Neutral	There is no difference in the potential impacts or beneficial effects of the two service options
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor	3.2 Enhance the aesthetics of the corridor to improve economic activity	c. Potential impacts to the natural environment			
		Biological Resources	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Fish Ecology	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Wetlands	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Water Resources	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Hazardous Materials	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity

BRT SERVICE OPTIONS ENVIRONMENTAL DATA					
GOAL	OBJECTIVE	CRITERION	Option 1: Franklin-Main; Gateway-McVay	Option 2: Franklin-Gateway; Main; McVay	Comments/Notes
		Geology/Seismic	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Parks/4(f)/6(f)	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Cultural/Sec 106 Resources	Neutral	Neutral	There are approximately 50 eligible historic resources that must be considered for potential impacts. Potential impacts to historic resources include: (1) loss of parking and access to historic resources in commercial areas (2) partial acquisitions and strip takes could adversely affect historic resources if alterations to the resource are required. However, there is no difference in Section 106 resource impacts between the two service options.
		Visual/Aesthetic	Improvements over existing conditions	Improvements over existing conditions	As it relates to corridor aesthetics and improving economic activity, both options would include the same station area improvements (lighting, landscaping, urban design elements)
		Noise/Vibration	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity
		Air Quality	No effect	No effect	This environmental element is not related to corridor aesthetics and improving economic activity

BRT SERVICE OPTIONS ENVIRONMENTAL DATA					
GOAL	**OBJECTIVE**	**CRITERION**	**Option 1: Franklin-Main; Gateway-McVay**	**Option 2: Franklin-Gateway; Main; McVay**	**Comments/Notes**
		Summary Potential Impacts to Environmentally Sensitive Resources Relative Rating	Neutral	Neutral	For most of the environmental elements, there is no relationship to aesthetics and economic activity. However, both options would include station area improvements (lighting, landscaping, urban design elements) but the effect would be similar.