Memorandum

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Date: October 17, 2014

RE: Main-McVay Transit Study – DRAFT Tier II Screening Evaluation Memo

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This technical memorandum summarizes the analysis and findings from the Tier II Screening Evaluation of four out of seven of the critical decision elements for the Main-McVay Transit Study:

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

Decisions resulting from this analysis will inform the remaining options to be evaluated and considered in November:

- Enhanced Bus
- BRT Service
- BRT Lane Configurations

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For Additional Information or to Comment

If you would like additional information about the Main-McVay Transit Study or would like to provide feedback, please contact us.

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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 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 and the Governance Team 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 determine to pursue a transit project in the Main-McVay Corridor, then the range of most promising solutions resulting from this study would be advanced to that future study.

1.2 Introduction

The Tier I Screening gauged whether or not each transit solution addressed the Study's Purpose, Need, Goals and Objectives (Attachment A). After the broad range of transit solutions was developed, the Project Team screened each of the transit solutions to determine which options 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 this 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 Enhanced Bus options include 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 the elements of rail transit and the flexibility of buses. LTD currently operates BRT (branded as EmX) on two corridors in the Eugene-Springfield area.

Table 1.2-1. Narrowed Range of Transit Solutions and Options Advanced to Tier II Evaluation

Range of Transit Solutions	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	• High Exclusivity • Moderate Exclusivity • Low Exclusivity

1.3 Summary of Findings and Recommendations

This Tier II Screening Evaluation considered four of the seven transit solutions for the SAC's October 28, 2014 meeting and will consider the remaining three transit solutions for the SAC's November 18, 2014 meeting (Table 1.2-2). The SAC is scheduled to provide draft recommendations at their October and November meetings, and a final recommendation at their January 27, 2015 meeting.

The findings for this Tier II Screening Evaluation and the Project Team recommendations are detailed in Section 3 of this memo and summarized in Section 3.6 of this memo.

Table 1.2-2. Tier II Evaluation and Recommendation Schedule

Range of Transit Solutions	Options	SAC Recommendation Date
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	• October 28, 2014 Draft Recommendation • January 27, 2014 Final Recommendation
BRT Routing: Main Street East, Eastern Terminus	• Thurston Station (with connector service) • Thurston High School (with connector service) • Combination (some trips extend to Thurston High School) [*added by Project Team following the September 30, 2014 SAC meeting*]	• October 28, 2014 Draft Recommendation • January 27, 2014 Final Recommendation

Range of Transit Solutions	Options	SAC Recommendation Date
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	• October 28, 2014 Draft Recommendation • January 27, 2014 Final Recommendation
BRT Routing: McVay South	• McVay Highway (west side of I-5) • Old Franklin (east side of I-5)	• October 28, 2014 Draft Recommendation • January 27, 2014 Final Recommendation
Enhanced Bus Options	• Main Street • McVay Highway • Main Street Express	• November 18, 2014 Draft Recommendation • January 27, 2014 Final Recommendation
BRT Service Options	• Franklin-Main; Gateway-McVay • Franklin-Gateway; Main; McVay	• November 18, 2014 Draft Recommendation • January 27, 2014 Final Recommendation
BRT Lane Configurations	• High Exclusivity • Moderate Exclusivity • Low Exclusivity	• November 18, 2014 Draft Recommendation • January 27, 2014 Final Recommendation

1.3.1 BRT Station Spacing

The Project Team recommends 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. Key findings include:

- Fewer stops result in considerably faster travel times, reduced operating costs, and potential issues for people with mobility impairments.
- More stops result in higher capital costs because of the required number of stations and buses, improved access to transit, and a greater investment in streetscape, lighting, bicycle and pedestrian improvements near stations.
- The 1/3 mile stop spacing provides for continued easy access for the large majority for users and results in considerable savings in travel time, operating cost, and capital cost when compared to the 1/4 mile spacing option.
- The 1/2 mile spacing option further reduces travel time, operating costs, and capital costs, it creates access concerns, especially for persons with limited mobility.

1.3.2 BRT Routing: Main Street East, Eastern Terminus

The Project Team recommends that the combination option (which extends the service to Thurston High School only to 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 fort all trips. The option of extending every trip to Thurston High School

would significantly increase ridership costs without a commensurate increase in ridership. Key findings include:

- The Thurston High School extension would add additional annual operating costs without significantly increasing ridership and would add capital costs for a new station and one peak bus.
- However, the absence of direct service to the High School would likely result in some potential safety issues with students crossing Main Street.

1.3.3 BRT Routing: Main Street Downtown

The Project Team recommends 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 as the Couplet Option but eliminates bus travel through the most congested part of downtown Springfield. Although the Contraflow Option on South A Street would provide for faster westbound travel than using Main Street between 5th and 10th Streets, it would move the westbound stops on 10th Street and 14th Street from Main Street to South A Street, resulting in poorer access. In addition, having both eastbound and westbound stations on South A Street would likely require additional right-of-way. Key findings include:

- The Couplet and Combination Options provide better access to potential transit users today compared to the Contraflow (South A) option; however, there is little to no difference between any of the options in the future and there are no disadvantages for one or the other routing options for employment reasons.
- The Contraflow and Combination Options would not be subject to traffic congestion delays. The conversion of a travel lane on South A Street to a transit lane would reduce the current number of travel lanes but it is believed that the remaining two travel lanes will provide sufficient traffic capacity for eastbound travel (this issue will be studied further within the next month).

1.3.4 BRT Routing: McVay South

The Project Team recommends that both the McVay and Old Franklin Options be carried forward at this time since there is little difference between the two. Further analysis to be conducted in the coming month may determine opportunities for transit priority treatment or other advantages of one option or the other. Key findings include:

- The Project Team did not find any significant traffic and transit related differences in any measures between east and west routing.
- The McVay Highway route serves slightly more development than the Old Franklin route, though the differences are minor.
- The McVay Highway route is subject to greater traffic congestion, particularly approaching 30th Avenue in the morning periods when LCC is in session.

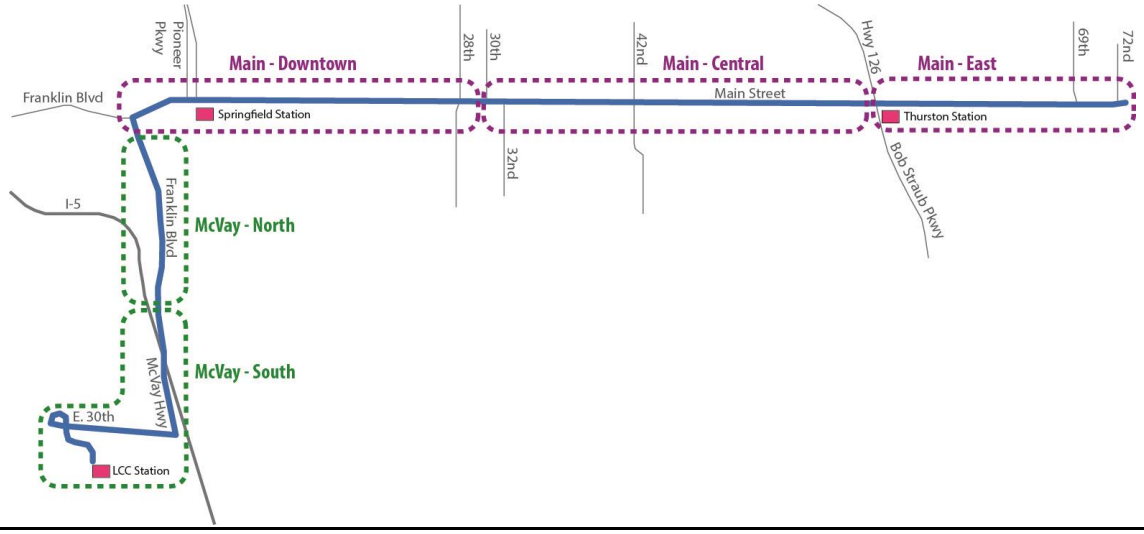
2 Advanced Transit Solutions

This chapter summarizes the narrowed range of transit solutions advanced from the Tier I Screening into this Tier II Screening Evaluation.

2.1 Introduction

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



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 met to review the report and 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 met to review the findings of the Tier I Screening Evaluation and recommend which transit options to advance to the Tier II Screening Evaluation.

The SAC agreed with many of the Project Team recommendations and recommended some changes to some options under consideration. The SAC's recommendations are summarized in Table 2.1-1. On October 9, 2014, the GT reviewed the Tier I Screening findings and concurred with the SAC's recommended narrowed range of transit solutions to advance into the Tier II Screening.

Table 2.1-1. Narrowed Range of Transit Solutions Recommended by SAC

	SAC Recommendations	
Options	**Retain**	**Eliminate**
Enhanced Bus Options		
Enhanced Bus Options 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		●
SAC Recommendations		
Unanimous vote to retain Options 1, 2 and 3 and eliminate Options 4 and 5. Agreed that it was important to not foreclose an option like Option #5 in the future when Glenwood experiences development.		
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	●	
SAC Recommendations		
SAC members voted to retain Options 2 and 4 while eliminating Options 1 and 3. The vote was 11 of 12 members voted to advance Options 2 and 4 and one member abstained from the vote.		
BRT Lane Configurations		
Lane Configuration Option 1: High Exclusivity	●	
Lane Configuration Option 2: Moderate Exclusivity	●	
Lane Configuration Option 3: Low Exclusivity	●	
SAC Recommendations		
Unanimous vote to retain all three options.		
BRT Routing: Main Street East, Eastern Terminus		
East Main Option 1: Thurston Station (with connector service)	●	

Options	SAC Recommendations	
	Retain	Eliminate
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		●
SAC Recommendations		
The SAC voted to retain Options 1 and 2 while eliminating Options 3 and 4. The SAC emphasized it was important to make sure the neighborhood connector service was included in the advanced options. The vote was 11 of 12 members agreed to advance Options 1 and 2 while one member abstained from the vote.		
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	●	
SAC Recommendations		
Unanimous vote to retain all three options to advance into Tier II Study.		
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)		●
SAC Recommendations		
Unanimous vote to retain Options 1 and 2 while eliminating Option 3.		
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	●	
SAC Recommendations		
The SAC did not agree with the Project Team recommendation to retain Option 2 and eliminate Options 1 and 3 and, instead, recommended retaining all three options to advance into the Tier II Screening. The vote was 11 of 12 members voting to advance all three options with one member abstaining.		

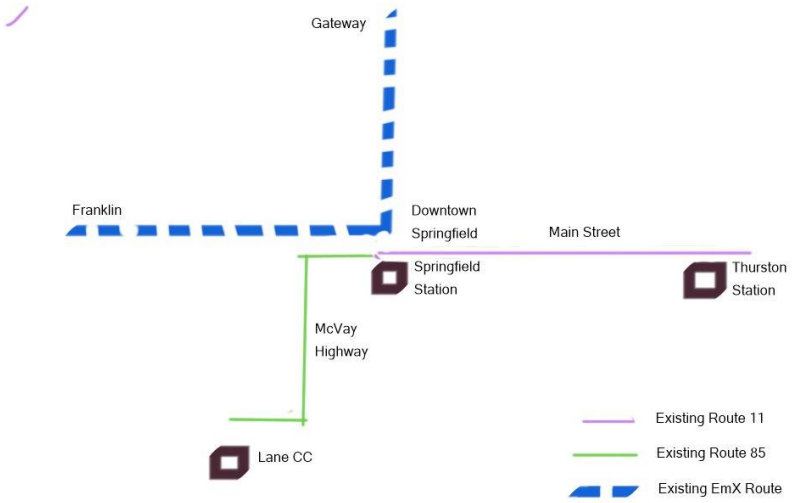
2.2 Narrowed Range of Transit Solutions Advanced

This section describes the narrowed range of transit solutions advanced into the Tier II Evaluation by the GT.

2.2.1 Existing Service (No Change Option)

The option to continue existing bus service (shown in Figure 4.2-2 below), 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 2.2-2: Existing Bus Service on the Main-McVay Corridor



Source: Cameron McCarthy. 2014.

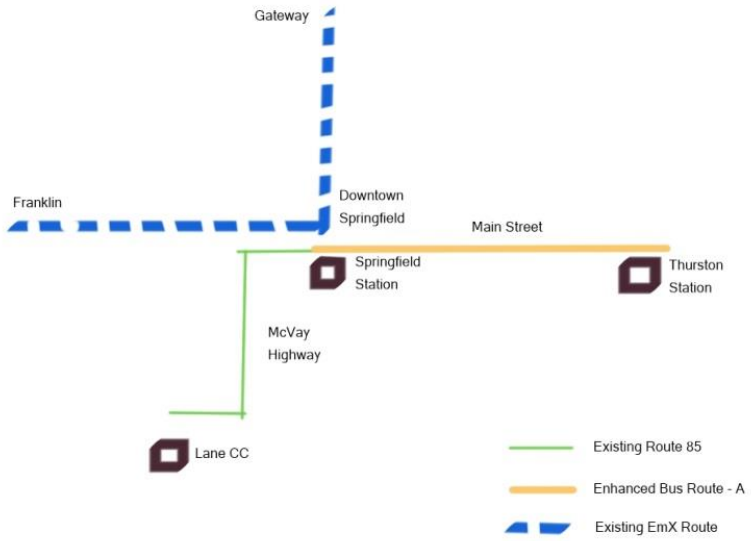
2.2.2 Enhanced Bus

Enhanced Bus options typically include transit signal priority (TSP), improved stations, 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 a Freeway Express route (Option 4) in combination with enhanced bus service on Main and/or McVay Highway Segments.

2.2.2.1 Service Options

1. Main Street Enhanced Bus: Replace #11 Thurston with Enhanced Bus Route; #85 LCC/Springfield and other routes would be unchanged (Figure 2.2-3).

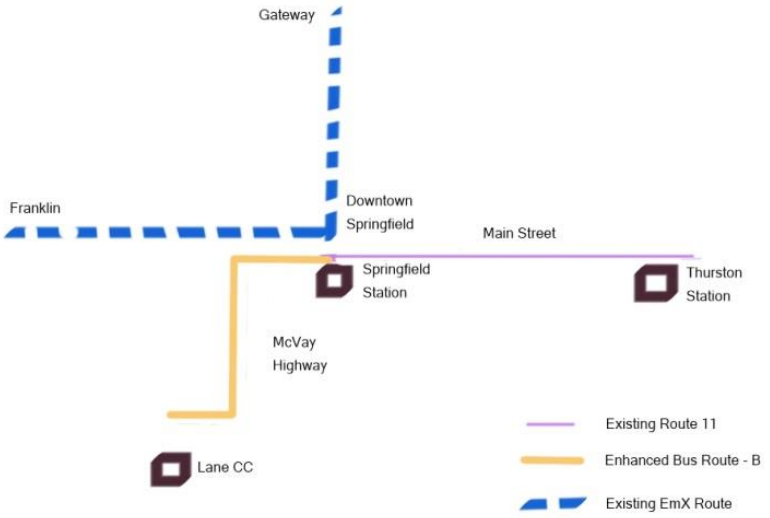
Figure 2.2-3: Enhanced Bus Option 1



Source: Cameron McCarthy. 2014.

2. McVay Highway Enhanced Bus: Replace #85 LCC / Springfield with Enhanced Bus Route; #11 Thurston and other routes would be unchanged (Figure 2.2-4).

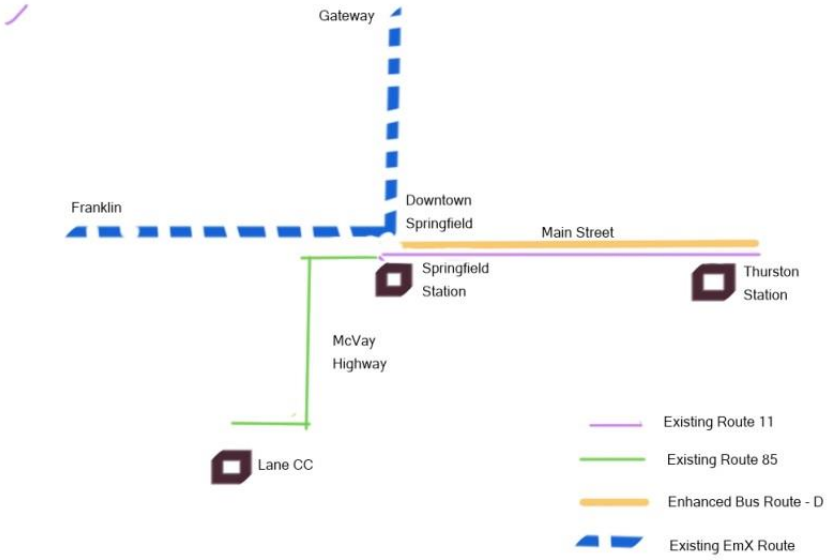
Figure 2.2-4: Enhanced Bus Option 2



Source: Cameron McCarthy. 2014.

3. 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.

Figure 2.2-5: Enhanced Bus Option 3



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

Option	Description	Routing	Route Termini	General Station Locations
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

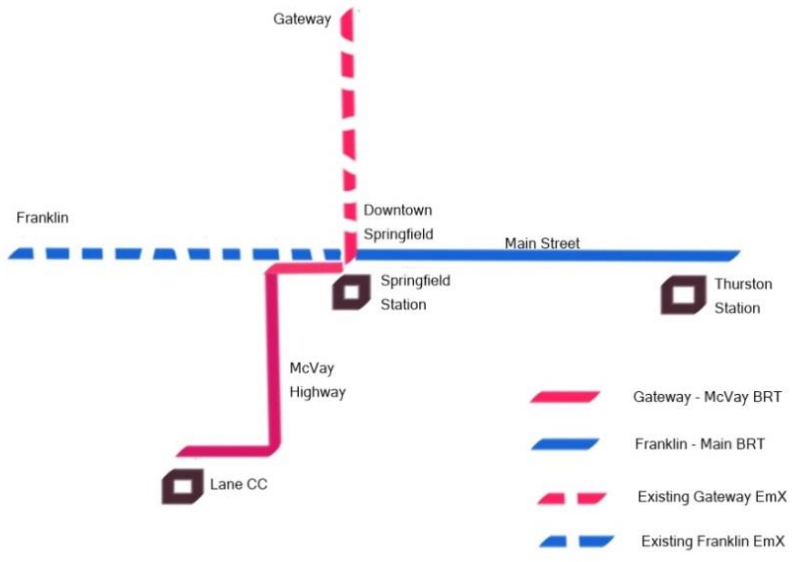
2.2.3 BRT

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

2.2.3.1 Service Options

1. Franklin-Main and Gateway-McVay BRT Lines. This option extends the existing Franklin EmX east on Main Street, and extends the existing Gateway EmX south on McVay Highway to LCC (Figure 2.2-6).

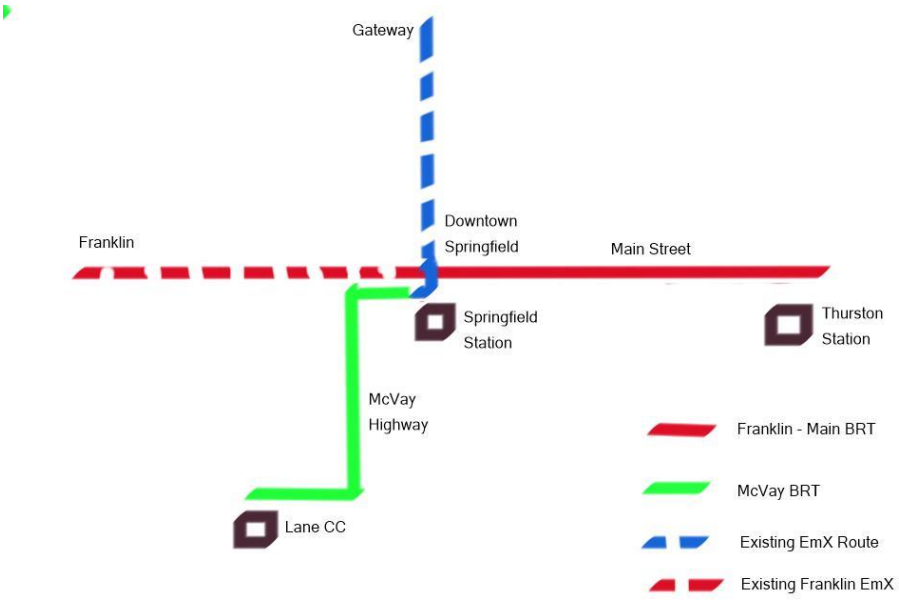
Figure 2.2-6: BRT Option - Franklin-Gateway and Main-McVay



Source: Cameron McCarthy. 2014.

2. Franklin-Main BRT; Gateway BRT; McVay Highway BRT. This option extends the existing Franklin EmX east on Main Street and creates a McVay Highway EmX line (Figure 2.2-7). The existing EmX service on the Gateway segment would be severed from the Franklin EmX and operate independently with a terminus at the Springfield Station.

Figure 2.2-7: BRT Option - Franklin-Main, Gateway and McVay



Source: Cameron McCarthy. 2014.

2.2.3.2 Lane Configurations

There are many lane configuration options for EmX, ranging from exclusive transit lanes to semi-exclusive transit lanes to mixed traffic. A detailed analysis of the most appropriate lane configuration for a particular street section is beyond the scope of this Study. Instead, the Study will evaluate three basic BRT lane approaches, described as follows:

- High-Level BRT: Under this approach, a large majority of the corridor is in exclusive or semi-exclusive transit lanes, with exceptions made for significant pinch points that would have high cost or impact.
- Moderate-Level BRT: This option would provide for exclusive or semi-exclusive transit lanes in many locations to address current or projected traffic congestion and as well as locations that have available right-of-way or where right-of-way expansion would have less impact. Sections that would result in significant impacts to businesses or residents would be avoided, unless required to address a key transit delay.
- Low-Level BRT: This option would only apply exclusive or semi-exclusive transit lanes in areas where there is severe traffic congestion or where there are opportunities for transit lanes with

minimal impact to the adjacent businesses or residents. A majority of the BRT line would operate in mixed traffic.

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	Possible increase in local connector service east of Thurston Station
		Main St to 58th	Thurston High School	Thurston Station Thurston High School	Layover location to be determined
	Central (30th – Bob Straub Pkwy)	Main St	NA	30th 35th 39th 42nd 44th 48th 50th 53rd	
	Downtown (McVay Hwy – 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
		Main St (both directions)	NA	Springfield Station 10th 14th 21st	Requires contraflow lane on Main 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.

3.1 Screening and Rating Options

3.1.1 Tiered Screening Approach

For the Tier II Screening, the transit solutions were screened in an order that would facilitate decision-making. That is, decisions about some of the transit solutions would affect decisions about other transit solutions and, therefore, should be made first.

The transit solutions considered first in the Tier II Screening are:

BRT Station Spacing

- Stations spaced less than 1/3 mile apart – approximately 1/4 mile apart
- Stations spaced approximately 1/3 mile apart
- Stations spaced more than 1/3 mile apart – approximately 1/2 mile apart

BRT Routing : Main Street East, Eastern Terminus

- Thurston Station (with connector service – routing to be determined)
- Thurston High School (with connector service – routing to be determined)

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)

The remaining three transit solutions that could be affected by the first decisions are:

Enhanced Bus Options

- Main Street
- McVay Highway
- Main Street Express

BRT Service Options

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

BRT Lane Configurations

- High Exclusivity
- Moderate Exclusivity
- Low Exclusivity

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.

-3	-2	-1	0	+1	+2	+3	NA
Least Effective / Potential Adverse Effects			Neutral / No Anticipated Effects			Most Effective / Potential Beneficial Effects	Not Affected by Options

For some criteria, the options do not affect a particular objective. For example, South McVay routing does not affect transfer requirements. In these cases, an "NA" score is indicated in the scoring matrix.

The following sections detail these screening assessments separately by four of the Project's seven decision elements.

3.1.3 Other Issues

In addition to the transit solutions and options evaluated in this screening, there are many other design elements, such as the use and need for bus pullouts, that will be considered in this and possible subsequent studies.

3.2 BRT Station Spacing

Station spacing is a key issue for BRT systems. Typically, BRT lines have stations spaced further apart than conventional bus service. This approach, which is typical of high capacity transit, allows for faster travel since the each passenger stop takes time. The tradeoff to wider stop spacing is walking distance to or from the bus stop, and the goal is to achieve an appropriate balance between convenient access to the stop and transit travel time.

Three options for BRT Station spacing have been carried forward to the Tier II analysis:

- Less than 1/3 mile between stations (assumed in analysis to be approximately 1/4 mile spacing)
- Approximately 1/3 mile between stations
- Greater than 1/3 mile between stations (assumed in analysis to be approximately 1/2 mile spacing)

The findings for screening BRT Station Spacing are summarized in Table 3.2-1. Data associated with the findings are included in the tables in Attachment B. In the table, **bolded criteria** indicate criteria most impacted by these options.

Table 3.2-1. Screening Summary BRT Station Spacing

BRT Station Spacing				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** *[**Bolded criteria** indicate criteria most impacted by these options]*	**Stations spaced less than 1/3 mile apart**	**Stations spaced approx. 1/3 mile apart**	**Stations spaced more than 1/3 mile apart**
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	2	3
Objective 1.2: Improve transit service reliability	A. On-time performance (no more than 4 minutes late) of transit service	NA	NA	NA
Objective 1.3: Provide convenient transit connections that minimizes the need to transfer	A. Number of transfers required between heavily used origin-destination pairs	NA	NA	NA
Objective 1.4: Increase transit ridership and mode share in the corridor	**A. Average weekday boardings on Corridor routes**	1	2	2
	B. Transit mode share along the corridor	1	2	2
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**	2	1	0
	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	1	-1	-3
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**	**8**	**5**
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	2	2
	B. Impact on LTD operating and maintenance costs	0	2	3
	C. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	1	2	2
	D. Cost to local taxpayers	0	2	3
Objective 2.2: Increase transit capacity to meet	A. Capacity of transit service relative to the current and	NA	NA	NA

BRT Station Spacing				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Stations spaced less than 1/3 mile apart**	**Stations spaced approx. 1/3 mile apart**	**Stations spaced more than 1/3 mile apart**
current and projected ridership demand	projected ridership			
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	**A. Benefit/cost assessment of planned improvements**	-1	2	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	1	1
	Scoring Subtotal Goal 2	**0**	**11**	**13**
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	3	2
	B. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	2	2	2
	C. Amount of vacant and underutilized land within ½ miles of stops/stations	2	1	0
	D. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	-1	0	0
	E. Local jobs created by project construction	2	1	0
	F. Percentage of current and planned population within ½ mile of FTN stop	2	1	0
	G. Percentage of current and planned employment within ½ mile of FTN stop	2	1	0
Objective 3.2: Enhance the aesthetics of the corridor to improve economic activity	A. Potential impact to street trees, landscaping	-2	-1	0
	B. Number of transit-related visual elements identified in adopted plans that would be implemented by transit solutions	1	1	1
	C. Potential impacts to the natural environment	0	0	0

BRT Station Spacing				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Stations spaced less than 1/3 mile apart**	**Stations spaced approx. 1/3 mile apart**	**Stations spaced more than 1/3 mile apart**
	D. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	3	2	1
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	2	2	1
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	3	2	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	2	2	2
	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	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.	-2	-1	0
	B. Impact on freight and delivery operations for Corridor businesses	-2	0	2
	Scoring Subtotal Goal 3	**18**	**18**	**13**
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	0	1
	B. General assessment of safety for persons with mobility	2	1	0

BRT Station Spacing				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Stations spaced less than 1/3 mile apart**	**Stations spaced approx. 1/3 mile apart**	**Stations spaced more than 1/3 mile apart**
	challenges			
	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	-1	0	1
Objective 4.2: Enhance the security of transit users and of the corridor as a whole	A. Amount of added street lighting	1	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	**7**	**6**	**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)	-1	0	1
	B. Impact on current and future year PM peak hour auto / truck travel times	-1	0	1
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	0	1
	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	**6**	**6**	**6**
SCORING TOTALS		**39**	**49**	**42**

Ratings Scale: +3=Most Effective / Potential Beneficial Effects, 0=Neutral, 1=Least Effective / Potential Adverse Effects, NA=Not Affected by Options

Bolded criteria are most impacted by these options

3.2.1 Analysis Assumptions

Stops for each of the spacing options were located along the corridor to meet the general spacing requirements, and to correspond to activity areas and available pedestrian crossings. This resulted in the following:

- For the less than 1/3 mile stop spacing, there are 21 stops on the Main Street Segment and 11 on the McVay Highway Segment. This results, when eliminating the originating stop, in 63 passenger stops per round trip.
- For the 1/3 mile stop spacing, there are 14 stops on the Main Street Segment and 9 on the McVay Highway Segment. This results, when eliminating the originating stop, in 45 passenger stops per round trip.
- For the greater than 1/3 mile stop spacing, there are 9 stops on the Main Street Segment and 7 on the McVay Highway Segment. This results, when eliminating the originating stop, in 31 passenger stops per round trip.

The following assumptions were used in the travel time and costing analysis:

- 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 Transportation System Plan (TSP) analysis, or estimated where not available
- The BRT vehicle stops at every station
- Operating cost for LTD service in 2014-15 is estimated to be $118.33 per service hour (from LTD Fully Allocated Cost Plan for 2012-13). This includes direct variable and fixed costs that are directly attributable to service, but does not include indirect fixed costs (general administration, etc.)
- Each BRT stop will include two station platforms (one in each direction) at a cost of approximately $300,000 per station
- BRT buses cost approximately $1.2 million each
- BRT service frequency is assumed to be similar to current EmX service

3.2.2 Key Findings

The analysis based on the evaluation criteria clearly demonstrates the tradeoffs between the stop spacing. The primary differentiators are:

- Travel time is considerably faster with fewer stops. Spacing stops every 1/3 mile is approximately 11 minutes faster roundtrip than stopping every 1/4 mile, and stopping every 1/2 mile is an additional 8 minutes faster roundtrip.
- The reduced travel time results in reduced operating cost. Assuming typical BRT service frequencies, annual operating costs are reduced by approximately $600,000 for the 1/3 stop spacing and $900,000 for the 1/2 mile spacing, when compared to the 1/4 mile stop spacing.
- Capital costs are considerably higher with more stops. Stations are one of the significant cost components of BRT systems, and stop spacing is directly related to the number of stations. In addition, longer travel time require more buses to provide the required service frequency. It is estimated that, compared to the 1/2 mile stop spacing (least capital cost option), the 1/3 mile

and 1/4 mile stop spacing would add $7 million and $19 million respectively to the project capital cost.

- Wider stop spacing can reduce delay for other motorists. If the BRT bus travels and stops in a travel lane, it will create a delay for motorists following the bus, and the more frequent the stops, the greater the delay. While it would be possible to have the bus stop out of traffic in a pullout, that options can increase BRT travel time as a result of delays by the bus pulling back into the traffic flow. If the BRT bus is in an exclusive transit lane, then this issue is moot.
- Access is improved with more stops. However, when looking at current boardings that are served by the BRT stops, the differences based on stop spacing are not very high. This is because the major stops (transit centers and major activity areas) are served by all the BRT stop spacing options. It is estimated that the 1/4 mile stop spacing accommodates approximately 93 percent of current corridor boardings (within 200 feet of the current boarding location), while the 1/3 mile stop spacing accommodates 87 percent of current boardings and the 1/2 mile stop spacing accommodates 79 percent of current boardings. However, added walking distance to the stop can be an issue for people with mobility impairments.
- Current and projected population and employment within a 1/2 mile of a BRT stop decreases with wider stop spacing. However, the differences are not significant due to the overlap of the stops. A total of 24,190 people live within 1/2 mile of the BRT stops when a 1/4 mile spacing is used. This drops about 3 percent to 23,373 with 1/3 mile spacing by 6 percent to 22,727 with the 1/2 mile spacing. The corresponding numbers for employment within 1/2 mile of the stops is 9,959, 9,714, and 9,516. Similar trends are projected to continue into the future.
- A greater number of BRT stops/stations support a higher level of corridor investment through station area streetscape and lighting improvements and pedestrian and bicycle improvements near stations.

3.2.3 Project Team Recommendation

The Project Team recommends 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. The 1/3 mile stop spacing provides for continued easy access for the large majority for users, reduces delay for others motorists, and results in considerable savings in travel time, operating cost, and capital cost when compared to the 1/4 mile spacing option. While the 1/2 mile spacing option further reduces travel time, operating costs, and capital costs, it creates access concerns, especially for persons with limited mobility.

3.3 BRT Routing: Main Street East, Eastern Terminus

Two eastern terminus options, as well as an option that combines the two, have been carried forward to the Tier II analysis:

- Thurston Station terminus
- Thurston High School terminus
- Possible combination (some trips extend to Thurston High School during peak school times)

The findings for screening BRT Main Street East Routing / Eastern Terminus are summarized in Table 3.3-1. Data associated with the findings are included in the tables in Attachment B. In the table, **bolded criteria** indicate criteria most impacted by these options.

Table 3.3-1. Screening Summary BRT Routing: Main Street East, Eastern Terminus

BRT Routing: Main Street East, Eastern Terminus				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** *[**Bolded criteria** indicate criteria most impacted by these options]*	**Thurston Station (with connector service)**	**Thurston High School (with connector service)**	**Combination (extend service to Thurston HS during school start / end times)**
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	NA	NA	NA
Objective 1.3: Provide convenient transit connections that minimizes the need to transfer	**A. Number of transfers required between heavily used origin-destination pairs**	-2	-1	-1
Objective 1.4: Increase transit ridership and mode share in the corridor	**A. Average weekday boardings on Corridor routes**	1	2	2
	B. Transit mode share along the corridor	1	2	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**	0	1	1
	B. Bicycle capacity at stops, stations, and on the bus	0	1	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	-1	0	0
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	**2**	**6**	**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**	3	-2	2
	B. Impact on LTD operating and maintenance costs	3	-2	1
	C. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	3	1	2
	D. Cost to local taxpayers	3	-1	2
Objective 2.2: Increase	A. Capacity of transit service	0	2	1

BRT Routing: Main Street East, Eastern Terminus				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** *[**Bolded criteria** indicate criteria most impacted by these options]*	**Thurston Station (with connector service)**	**Thurston High School (with connector service)**	**Combination (extend service to Thurston HS during school start / end times)**
transit capacity to meet current and projected ridership demand	relative to the current and projected ridership			
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	**A. Benefit/cost assessment of planned improvements**	3	0	-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	0	0
	Scoring Subtotal Goal 2	**15**	**-2**	**7**
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	1	1
	B. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	3	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	-2	-2
	E. Local jobs created by project construction	0	1	1
	F. Percentage of current and planned population within ½ mile of FTN stop	0	1	1
	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	-1	-1
	B. Number of transit-related visual elements identified in adopted plans that would be implemented by transit	0	0	0

BRT Routing: Main Street East, Eastern Terminus				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Thurston Station (with connector service)**	**Thurston High School (with connector service)**	**Combination (extend service to Thurston HS during school start / end times)**
	solutions			
	C. Potential impacts to the natural environment	0	-1	-1
	D. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	0	1	1
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	1	1
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	0	1	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	NA	NA	NA
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	NA	NA	NA
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	-1	-1
	Scoring Subtotal Goal 3	**6**	**2**	**2**
Goal 4: Enhance the safety and security of the corridor				
Objective 4.1: Improve	A. Number and quality of	0	0	0

BRT Routing: Main Street East, Eastern Terminus				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Thurston Station (with connector service)**	**Thurston High School (with connector service)**	**Combination (extend service to Thurston HS during school start / end times)**
the safety of pedestrians and bicyclists accessing transit and crossing Main Street	designated (marked) crossings near transit stops (signalized or unsignalized)			
	B. General assessment of safety for persons with mobility challenges	-2	2	1
	C. General assessment of potential to reduce the number of pedestrian / vehicle collisions	0	3	2
	D. General assessment of potential to reduce the number of bicycle / vehicle collisions	0	1	1
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	0	1	1
	C. Extent and character of stop and station improvements	0	1	1
	Scoring Subtotal Goal 4	**-2**	**8**	**6**
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	-1	-1
	B. Impact on current and future year PM peak hour auto / truck travel times	0	-1	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	0	0	0
	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	0	0	0
	Scoring Subtotal Goal 5	**0**	**-2**	**-1**
SCORING TOTAL		**21**	**12**	**21**

Ratings Scale: +3=Most Effective / Potential Beneficial Effects, 0=Neutral, 1=Least Effective / Potential Adverse Effects, NA=Not Affected by Options

Bolded criteria are most impacted by these options

3.3.1 Analysis Assumptions

Three routing options to serve Thurston High School have been developed. Two of the options use the high school parking lot for a turnaround, though they do not have the passenger stop on high school property since it is expected that a public access stop within the high school is not desirable. In each of the options, the passenger stop is within easy access from the high school.

Assumptions used in the analysis:

- 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 36 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
- It is assumed that the travel time for each option is 7 minutes for the round trip from the Thurston station. This is based on an analysis of travel speed, intersection delay, and dwell time at the station.
- The bus will return to Thurston Station after leaving the high school.
- For the combination option, it is assumed that there will be three morning trips and three afternoon trips, and service would be provided only when school is in session
- Operating cost for LTD service in 2014-15 is estimated to be $118.33 per service hour (from LTD Fully Allocated Cost Plan for 2012-13). This includes direct variable and fixed costs that are directly attributable to service, but does not include indirect fixed costs (general administration, etc.)
- The Thurston High School stop is a single station at a cost of approximately $300,000.
- BRT buses cost approximately $1.2 million each
- Ridership estimates assume that half the existing riders would be lost if a transfer was introduced.

3.3.2 Key Findings

The Key findings are:

- The Thurston High School extension would add $400,000 in additional annual operating cost if the extension occurs at all times. The additional operating cost is approximately $17,000 if the service extension to the high school only occurs during school start and end times and only when school is in session.
- The extension would add approximately 75 riders per weekday if done at all times, and 50 riders if only for selected trips.
- Capital costs for the extension are approximately $1.5 million, based on adding one station and one peak bus. This would be the same cost with either the extension for all trips or the extension for limited trips.
- The absence of direct service to Thurston High School would likely result in some high school students walking to Thurston Station, which could create some potential safety issues with students crossing Main Street.

3.3.3 Project Team Recommendations

The Project Team recommends that the combination option 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. The option of extending every trip to Thurston High School would significantly increase ridership costs without a commensurate increase in ridership.

3.4 BRT Main Street Downtown Routing Options

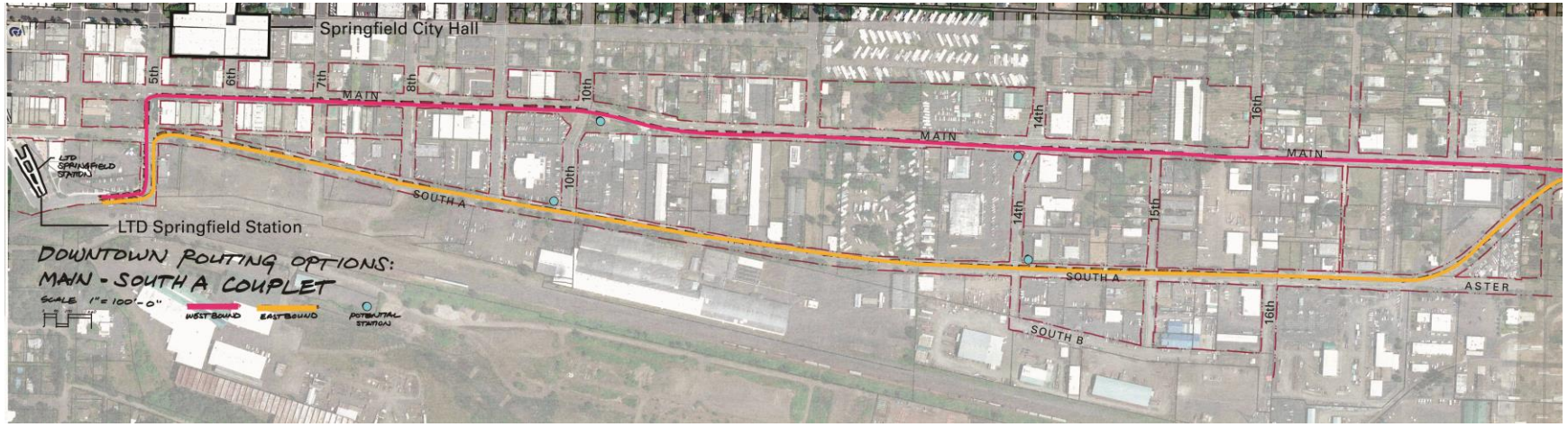
Three routing options are considered as part of the Tier II screening:

- Couplet Option: South A Street/Main Street couplet (bus travels with existing traffic flow) (Figure 3.4-1)
- Contraflow Option: Two-Way on South A Street (westbound BRT travel would be contraflow to existing traffic flow) (Figure 3.4-2)
- Combination Option: Two-Way on South A Street routing west of 10th or 14th Street, and South A Street/Main Street couplet east of 19th or 14th (westbound bus would be contraflow west of 10th or 14th Street) (Figures 3.4-3 and 3.4-4)

As noted, the Combination Option uses either 10th or 14th to transition to between Main Street and South A Street. After investigating those two design variations, the Project Team recommends using 10th Avenue. That recommendation is based on the following:

- The 10th Street option provides for a westbound station at 10th & Main, which better serves downtown Springfield. The westbound station under the 14th Street alternative would be at 10th and South A Streets.
- The station at 10th and South A under the 14th Street option would require expansion of the right-of-way. Under the 10th Street design option, the station can be located east of 10th Street (and east of the point where the westbound service starts), and would not require street widening.

Figure 3.4-1: Couplet Option –South A Street / Main Street

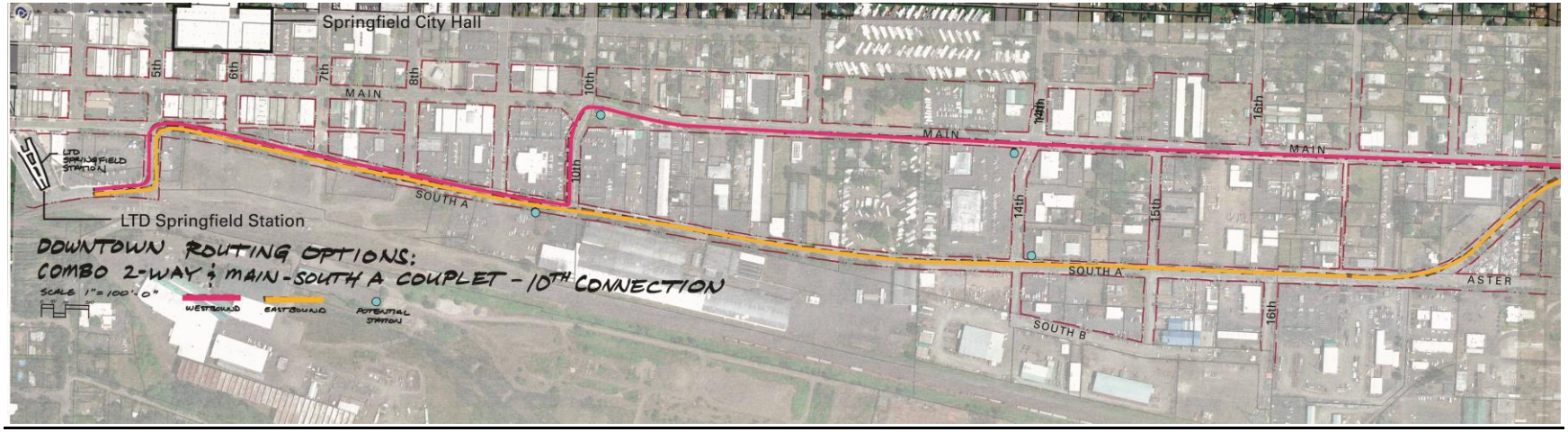


Source: Cameron McCarthy. 2014.

Figure 3.4-2: Contraflow Option – Two-Way on South A Street

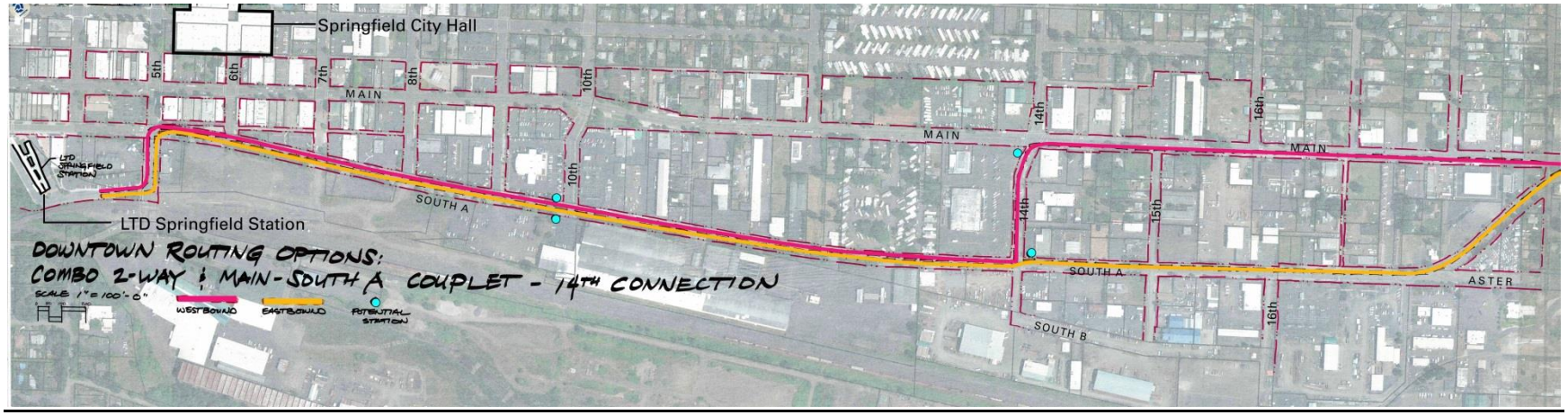
Source: Cameron McCarthy. 2014.

Figure 3.4-3: Combination Option – Two-Way on South A Street Routing West of 10th



Source: Cameron McCarthy. 2014.

Figure 3.4-4: Combination Option – Two-Way on South A Street Routing West of 14th



Source: Cameron McCarthy. 2014.

The findings for screening BRT Main Street Downtown Routing are summarized in Table 3.4-1. Data associated with the findings are included in the tables in Attachment B. In the table, **bolded criteria** indicate criteria most impacted by these options.

Table 3.4-1. Screening Summary BRT Routing: Main Street Downtown

BRT Routing: Main Street Downtown				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** *[**Bolded criteria** indicate criteria most impacted by these options]*	**Main Street / South A Couplet**	**South A Street (eastbound and westbound)**	**South A Street to 10th or 14th; Couplet east of 10th or 14th**
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	2	1
Objective 1.2: Improve transit service reliability	A. On-time performance (no more than 4 minutes late) of transit service	0	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	NA	NA	NA
Objective 1.4: Increase transit ridership and mode share in the corridor	**A. Average weekday boardings on Corridor routes**	2	1	2
	B. Transit mode share along the corridor	2	1	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**	2	1	2
	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	1	-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.	0	0	0
	Scoring Subtotal Goal 1	**7**	**4**	**9**
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	0
	B. Impact on LTD operating and maintenance costs	0	2	1

BRT Routing: Main Street Downtown

Goals and Objectives	Evaluation Criteria *[**Bolded criteria** indicate criteria most impacted by these options]*	Transit Solutions Main Street / South A Couplet	South A Street (eastbound and westbound)	South A Street to 10th or 14th; Couplet east of 10th or 14th
	C. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	0	2	1
	D. Cost to local taxpayers	0	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	0
Objective 2.3: Implement corridor improvements that provide an acceptable return on investment	A. Benefit/cost assessment of planned improvements	0	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	0	0	0
	Scoring Subtotal Goal 2	**0**	**4**	**2**
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	3	2
	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	1	1
	D. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	0	-1	0
	E. Local jobs created by project construction	0	0	0
	F. Percentage of current and planned population within ½ mile of FTN stop	1	0	1
	G. Percentage of current and planned employment within ½ mile of FTN stop	1	0	1
Objective 3.2: Enhance the	A. Potential impact to street	0	0	0

BRT Routing: Main Street Downtown				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** *[**Bolded criteria** indicate criteria most impacted by these options]*	**Main Street / South A Couplet**	**South A Street (eastbound and westbound)**	**South A Street to 10th or 14th; Couplet east of 10th or 14th**
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	0	0	0
	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	1	0	1
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	NA	NA	NA
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	NA	NA	NA
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	0	-1	1

BRT Routing: Main Street Downtown				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Main Street / South A Couplet**	**South A Street (eastbound and westbound)**	**South A Street to 10th or 14th; Couplet east of 10th or 14th**
	properties acquired, parking displacements, and access impacts.			
	B. Impact on freight and delivery operations for Corridor businesses	0	0	-1
	Scoring Subtotal Goal 3	**7**	**3**	**9**
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	0	2
	B. General assessment of safety for persons with mobility challenges	1	-1	0
	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	-2
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	0	0	0
	C. Extent and character of stop and station improvements	0	0	0
	Scoring Subtotal Goal 4	**3**	**-1**	**0**
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	-1	-2
	B. Impact on current and future year PM peak hour auto / truck travel times	0	-1	-2
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	0	0	0

BRT Routing: Main Street Downtown				
		Transit Solutions		
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**Main Street / South A Couplet**	**South A Street (eastbound and westbound)**	**South A Street to 10th or 14th; Couplet east of 10th or 14th**
	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	0	0	0
	Scoring Subtotal Goal 5	**0**	**-2**	**-2**
SCORING TOTAL		**17**	**8**	**19**

Ratings Scale: +3=Most Effective / Potential Beneficial Effects, 0=Neutral, 1=Least Effective / Potential Adverse Effects, NA=Not Affected by Options

Bolded criteria are most impacted by these options

3.4.1 Analysis Assumptions

Assumptions used in the analysis:

- 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
- The stations for each alignment were assumed using the 1/3 mile spacing to be at 10th and 14th Streets (on either Main or South A Streets).
- The contraflow lane was assumed to use the existing northern-most travel lane on South A Street (leaving two eastbound travel lanes).

3.4.2 Key Findings

The Key findings are:

- Traveling through more traffic signals increases travel time and reduces reliability
- The South A Street contraflow option provides the shortest travel times
- Contraflow transit lane on South A Street increases pedestrian conflicts slightly and reduces bike conflicts on Main Street
- Contraflow transit lane reduces eastbound roadway capacity (assuming the contraflow lane is provided by eliminating one of the three eastbound vehicle travel lanes which is the assumption made for this analysis)

- The Couplet and Combination Options provide better access to people today compared to the Contraflow (South A) option. There is little to no differentiation between any of the options in the future. There are virtually no disadvantages for one or the other routing options for employment reasons.
- The Contraflow and Combination Options require an exclusive transit lane on South A Street that operates contraflow to traffic. This lane would operate as a transit only lane and would not be subject to traffic congestion delays except at signalized intersections.

3.4.3 Project Team Recommendation

The Project Teams recommends that the Combination Option, using 10th Street, be carried forward. That option provides for the same access as the Couplet Option (same stop locations), but eliminates bus travel through the most congested part of downtown Springfield. The contraflow on South A Street will provide for faster westbound travel than using Main Street between 5th and 10th Streets, and avoids more traffic signals. The Contraflow Option would move the westbound stops on 10th Street and 14th Street from Main Street to South A Street, resulting in poorer pedestrian access from downtown. In addition, having both eastbound and westbound stations on South A Street would likely require additional right-of-way.

3.5 BRT Routing McVay South

Two McVay Highway South Routing options have been carried forward to the Tier II screening:

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

The findings for screening BRT McVay South Routing are summarized in Table 3.5-1. Data associated with the findings are included in the tables in Attachment B. In the table, **bolded criteria** indicate criteria most impacted by these options.

Table 3.5-1. Screening Summary BRT Routing: McVay South

BRT Routing: McVay South			
		Transit Solutions	
Goals and Objectives	**Evaluation Criteria** *[**Bolded criteria** indicate criteria most impacted by these options]*	**McVay Highway (west side of I-5)**	**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	-1	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	NA	NA
Objective 1.4: Increase transit ridership and mode	**A. Average weekday boardings on Corridor routes**	0	0

BRT Routing: McVay South			
		Transit Solutions	
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**McVay Highway (west side of I-5)**	**Old Franklin (east side of I-5)**
share in the corridor	**B. Transit mode share along the corridor**	0	0
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
	B. Bicycle capacity at stops, stations, and on the bus	0	0
	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.	0	0
	Scoring Subtotal Goal 1	**0**	**0**
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**	0	-1
	Scoring Subtotal Goal 2	**0**	**-1**
Goal 3: Support economic development, revitalization and land use redevelopment opportunities for the corridor			
Objective 3.1: Support	A. Support for the overall BRT	0	0

BRT Routing: McVay South			
		Transit Solutions	
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**McVay Highway (west side of I-5)**	**Old Franklin (east side of I-5)**
development and redevelopment as planned in other adopted documents	System Plan		
	B. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	0	0
	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	0	0
	F. Percentage of current and planned population within ½ mile of FTN stop	0	0
	G. Percentage of current and planned employment within ½ mile of FTN stop	0	0
Objective 3.2: Enhance the aesthetics of the corridor to improve economic activity	A. Potential impact to street trees, landscaping	0	0
	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	NA	NA
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's	NA	NA

BRT Routing: McVay South			
		Transit Solutions	
Goals and Objectives	**Evaluation Criteria** ***[Bolded criteria** indicate criteria most impacted by these options]*	**McVay Highway (west side of I-5)**	**Old Franklin (east side of I-5)**
	identity and increase awareness of Main Street projects		
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	NA	NA
	B. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	NA	NA
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
	B. Impact on freight and delivery operations for Corridor businesses	-1	0
	Scoring Subtotal Goal 3	**0**	**0**
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)**	0	0
	B. General assessment of safety for persons with mobility challenges	0	-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	0	0
	B. Amount of added lighting at /	0	0

BRT Routing: McVay South			
		Transit Solutions	
Goals and Objectives	**Evaluation Criteria** *[**Bolded criteria** indicate criteria most impacted by these options]*	**McVay Highway (west side of I-5)**	**Old Franklin (east side of I-5)**
	near transit stops		
	C. Extent and character of stop and station improvements	0	0
	Scoring Subtotal Goal 4	**0**	**-1**
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	0	0
	B. Length of new or improved sidewalk in stop and station areas	0	0
	C. Length of new or improved bike lanes in stop and station areas	0	0
	D. Number of bicycle treatments in stop and station areas	0	0
	Scoring Subtotal Goal 5	**0**	**0**
SCORING TOTAL		**0**	**-1**

Ratings Scale: +3=Most Effective / Potential Beneficial Effects, 0=Neutral, 1=Least Effective / Potential Adverse Effects, NA=Not Affected by Options

Bolded criteria are most impacted by these options

3.5.1 Analysis Assumptions

Assumptions used in the analysis:

- 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

3.5.2 Key Findings

The Key findings are:

- No significant traffic and transit related differences in any measures between east and west routing.
- The McVay route serves slightly more development than Old Franklin, though the differences are minor.
- The McVay Highway route is subject to greater traffic congestion, particularly approaching 30th Avenue in the morning periods when LCC is in session.

3.5.3 Project Team Recommendations

The Project Team recommends that both the McVay and Old Franklin Options be carried forward since there is little difference between the two. Further analysis to be conducted in the coming month may determine opportunities for transit priority treatment or other advantages of one option or the other.

3.6 Recommendation Summary

The Project Team's recommendations are summarized in Table 3.6-1.

Table 3.6-1. Project Team Recommendations Summary

Options	Project Team Recommendations: Retain	Project Team Recommendations: Eliminate
3.2: 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		●
Section 3.2 Project Team Recommendations		
Travel time is considerably faster with fewer stops and reduced travel time results in reduced operating costs. Capital costs are considerably higher with more stops because of the number of stations that need to be constructed. In addition, longer travel times require more buses to maintain a given service frequency, which adds to project vehicle costs.. Access to transit is improved with more stops; however, the relative difference between boardings for each of the options is not great. The added distance when stops are spaced further apart can be an issue for people with mobility impairments. An increase in stations represents greater investment in streetscape, lighting, bicycle and pedestrian improvements near stations. The Project Team recommends 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. The 1/3 mile stop spacing provides for continued easy access for the large majority for users and results in considerable savings in travel time, operating cost, and capital cost when compared to the 1/4 mile spacing option. While the 1/2 mile spacing option further reduces travel time, operating costs, and capital costs, it creates access concerns, especially for persons with limited mobility.		
3.3: 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 Combination: (extend service to Thurston HS during school start / end times)	●	
Section 3.3 Project Team Recommendations		

Options	Project Team Recommendations: Retain	Project Team Recommendations: Eliminate
The Thurston High School extension would add additional annual operating costs without significantly increasing ridership and would add capital costs for a new station and one peak bus. The absence of direct service to the High School would likely result in some high school students walking to Thurston Station, which creates some potential safety issues with students crossing Main Street. The Project Team recommends that the combination option 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. The option of extending every trip to Thurston High School would significantly increase ridership costs without a commensurate increase in ridership.		
3.4: 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; Couplet east of 10th	●	
Downtown Routing Option 3: South A Street to 14th; Couplet east of 14th		●
Section 3.4 Project Team Recommendations		
The Couplet and Combination Options provide better access to people today compared to the Contraflow (South A) option. There is little to no difference between any of the options in the future and there are no disadvantages for one or the other routing options for employment reasons. The Contraflow and Combination Options require an exclusive transit lane on South A Street that operates contraflow to traffic. This lane would operate as a transit only lane and would not be subject to traffic congestion delays. The conversion of a travel lane on South A Street to a transit lane would reduce the current number of travel lanes from three to two eastbound travel lanes, which has been determined to provide sufficient traffic capacity. The Project Teams recommends that the Combination Option, using 10th Street, be carried forward. That option provides for the same access as the Couplet Option but eliminates bus travel through the most congested part of downtown Springfield. Although the Contraflow Option on South A Street would provide for faster westbound travel than using Main Street between 5th and 10th Streets, it would move the westbound stops on 10th Street and 14th Street from Main Street to South A Street, resulting in poorer access. In addition, having both eastbound and westbound stations on South A Street would likely require additional right-of-way.		
3.5: 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)	●	
Section 3.5 Project Team Recommendations		
There are no significant traffic and transit related differences in any measures between east and west routing. The McVay route serves slightly more development than Old Franklin, though the differences are minor. The McVay Highway route is subject to greater traffic congestion, particularly approaching 30th Avenue in the morning periods when LCC is in session. The Project Team recommends that both the McVay and Old Franklin Options be carried forward since there is little difference between the two. Further analysis may determine opportunities for transit priority treatment or other travel time advantages of one option or the other.		

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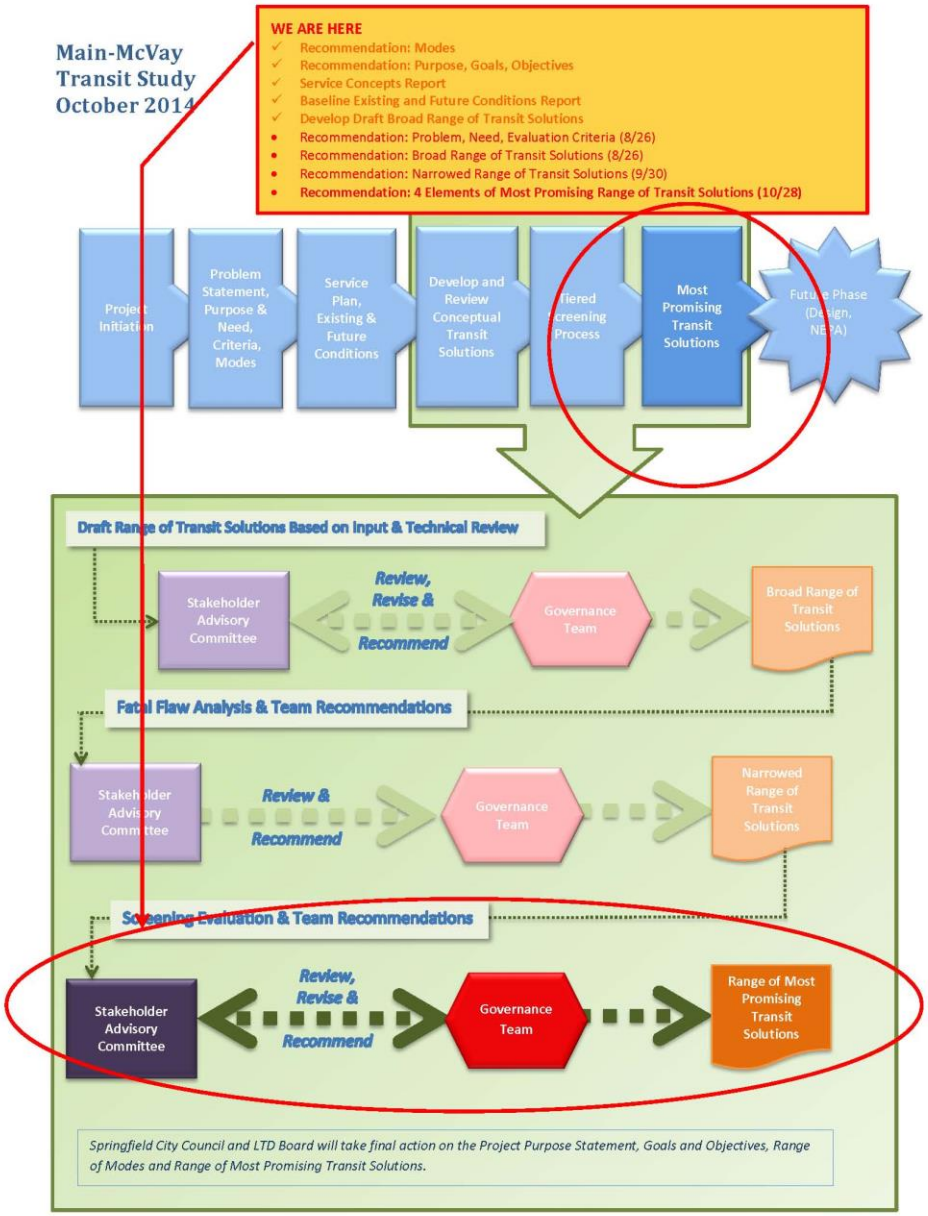
4 Next Steps

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. The decision regarding which transit solutions hold the most promise for resolving transportation problems in the Corridor is anticipated in February 2015. For the most current meeting schedule, please see the project website [http://ourmainstreetspringfield.org.](http://ourmainstreetspringfield.org)



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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: Data Tables

BRT Station Spacing

Table B-1. BRT Station Spacing Data

			BRT STATION SPACING			
GOAL	**OBJECTIVE**	**CRITERION**	**< 1/3 Mile**	**1/3 Mile**	**> 1/3 Mile**	**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	Base	Reduce by 11 minutes	Reduce by 19 minutes	Uses closest stop spacing as the "base" for round trip time
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	L	M	H	More frequent stops decreases reliability
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	N/A	N/A	N/A	Transfers not impacted by stop spacing
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	Base	Slight Increase	No Change	Uses closest stop spacing as the "base" for ridership; differences likely to be minor
		b. Transit mode share along the corridor	Base	Slight Increase	No Change	Mode share based on 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	Base (24,200 people)	800 fewer people (23,400 people)	1,500 fewer people (22,700 people)	Based on regional model data.
		b. Bicycle capacity at stops, stations, and on the bus	Base (120 bicycle capacity)	38 fewer (82 bicycle capacity)	53 fewer (64 bicycle capacity)	Considers only bike parking at stations; assumes two bikes per station
		c. Number of park and ride spaces with direct transit access to major destinations	N/A	N/A	N/A	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	H	M	L	Rated on distance to stop for the greatest number of people

			BRT STATION SPACING			
GOAL	**OBJECTIVE**	**CRITERION**	**< 1/3 Mile**	**1/3 Mile**	**> 1/3 Mile**	**Comments/Notes**
	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.	N/A	N/A	N/A	Changes do not impact equity of service provision relative to those populations. Closer stops is offset by faster travel time
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	Base	Reduced by $0.60 per trip	Reduced by $0.90 per trip	Uses closest stop spacing as the "base" for operating cost. Differences primarily the result of reduced operating cost
		b. Impact on LTD operating and maintenance costs	Base	Less $600,000 per year	Less $900,000 per year	Uses closest stop spacing as the "base" for operating cost
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	M	H	H	Wider stop spacing results in m ore efficient service
		d. Cost to local taxpayers	L	M	H	Local costs include operating expenses and local match for grant
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	N/A	N/A	N/A	Capacity based on bus size and service frequency, which is similar fort all options
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Base ($49 million)	$12 million less ($37 million)	$19 million less ($30 million)	Shows Capital Cost only. Cost is for stations and peak bus requirements
	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	L	M	H	Higher number of stops has more potential for impacts

		BRT STATION SPACING				
GOAL	**OBJECTIVE**	**CRITERION**	**< 1/3 Mile**	**1/3 Mile**	**> 1/3 Mile**	**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	M	H	M	1/3 mile stop spacing most consistent with BRT Plan
		b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	M	M	M	All options consistent within HFN network
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	Base (2,641 Acres/ 1,514 Properties)	85 more acres (2,726 Acres/ 1,512 Properties)	70 fewer acres (2,571 Acres/ 1,450 Properties)	Within 1/2 mile from stations. Underutilized land is defined as having less improvement value than land value
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	L	M	H	Higher number of stops has more potential for impacts
		e. Local jobs created by project construction	Base(500 direct & indirect jobs)	120 fewer jobs created(380 direct & indirect jobs)	190 fewer jobs created(310 direct & indirect jobs)	Based on capital cost
		f. Percentage of current and planned population within ½ mile of FTN stop	Current: 9.8% Planned: 8.7%	Current: 9.5% Planned: 8.5%	Current: 9.2% Planned: 8.2%	Based on regional model data. Shows percent of metro area population served by the stops.
		g. Percentage of current and planned employment within ½ mile of FTN stop	Current: 8.6% Planned: 8.7%	Current: 8.3% Planned: 8.6%	Current: 8.2% Planned: 8.4%	Based on regional model data. Shows percent of metro area employment served by the stops.
	3.2 Enhance the aesthetics of the corridor to improve economic activity	a. Potential impact to street trees, landscaping	H	M	L	Higher number of stops has more potential for impacts
		b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	H	M	L	Higher number of stops has more potential for impacts

		BRT STATION SPACING				
GOAL	**OBJECTIVE**	**CRITERION**	**< 1/3 Mile**	**1/3 Mile**	**> 1/3 Mile**	**Comments/Notes**
		c. Potential impacts to the natural environment	H	M	L	Higher number of stops has more potential for impacts
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	H	M	L	Higher number of stops has more potential for station-related improvements
	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	M	M	M	All stop spacing options serve identified activity nodes
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	M	M	M	Higher number of stops has more potential for station-related improvements
	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	H	M	L	Higher number of stops has more potential for station-related improvements
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	H	M	L	Higher number of stops has more potential for station-related improvements

			BRT STATION SPACING			
GOAL	**OBJECTIVE**	**CRITERION**	**< 1/3 Mile**	**1/3 Mile**	**> 1/3 Mile**	**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	H	M	L	Higher number of stops has more potential for impacts
		b. Impact on freight and delivery operations for Corridor businesses	H	M	L	Higher number of stops has more potential for impacts
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)	L	M	H	The more stops, the greater number of stops that are not near pedestrian crossings
		b. General assessment of safety for persons with mobility challenges	H	M	L	More stops reduces walking distance and exposure to automobiles
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	M	M	M	More stops reduces walking distance and reduce exposure to automobiles, however, there is an insignificant safety impact
		d. General assessment of potential to reduce the number of bicycle / vehicle collisions	L	M	H	More stops results in more conflicts with bicycles when bus pulls over
	4.2 Enhance the security of transit users and of the corridor as a whole	a. Amount of added street lighting	N/A	N/A	N/A	Street lighting not impacted
		b. Amount of added lighting at / near transit stops	H	M	L	Higher number of stops has more potential for station-related improvements
		c. Extent and character of stop and station improvements	H	M	L	Higher number of stops has more potential for station-related improvements

		BRT STATION SPACING				
GOAL	**OBJECTIVE**	**CRITERION**	**< 1/3 Mile**	**1/3 Mile**	**> 1/3 Mile**	**Comments/Notes**
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	M	H	Higher number of stops has more potential for impacts
		b. Impact on current and future year PM peak hour auto / truck travel times	L	M	H	Higher number of stops has more potential for impacts
	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	M	M	M	There are both access benefits and additional conflicts associated with the number of stops
		b. Length of new or improved sidewalk in stop and station areas	H	M	L	Higher number of stops has more potential for station-related improvements
		c. Length of new or improved bike lanes in stop and station areas	H	M	L	Higher number of stops has more potential for station-related improvements
		d. Number of bicycle treatments in stop and station areas	H	M	L	Higher number of stops has more potential for station-related improvements

BRT Routing: Main Street East, Eastern Terminus

Table B-2. BRT Routing: Main Street East, Eastern Terminus Data

BRT ROUTING: MAIN STREET EAST, EASTERN TERMINUS						
GOAL	**OBJECTIVE**	**CRITERION**	**Thurston Station**	**Thurston HS - Service All Day**	**Thurston HS - Service at Peaks Only**	**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	Base	Add 7 minutes	Add 7 minutes	Use Thurston Station as the "base" for round trip time
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	H	L	M	Added route and possible congestion near Thurston High School has potential to delay service
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	L	H	M	Extension to Thurston High School eliminates transfer for some riders
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	Base	Add 75	Add 50	Based on current ridership at stops near Thurston High School. Assumes that half would be lost if transfer required.
		b. Transit mode share along the corridor	Base	Slight Increase	Slight Increase	Based on 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	Base (22,300 people)	1,100 more people (23,400 people)	1,100 more people (23,400 people)	Based on regional model data.
		b. Bicycle capacity at stops, stations, and on the bus	Base	2 more	2 more	Considers only bike parking at stations; assumes two bikes per station
		c. Number of park and ride spaces with direct transit access to major destinations	N/A	N/A	N/A	All options serve existing park and rides. No park and rides are assumed to be added.

BRT ROUTING: MAIN STREET EAST, EASTERN TERMINUS						
GOAL	**OBJECTIVE**	**CRITERION**	**Thurston Station**	**Thurston HS - Service All Day**	**Thurston HS - Service at Peaks Only**	**Comments/Notes**
		d. Assessment of accessibility by persons with mobility challenges	L	H	H	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.	N/A	N/A	N/A	
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	Base	$18 per added trip	Less that $2 per added trip	Added operating cost divided by added trips
		b. Impact on LTD operating and maintenance costs	Base	Add $400,000	Add $18,000	Annual operating costs based on added travel time. Combination option assumes 6 trips per day
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	M	M	H	Based on an assessment of cost and populations served as well as vacant/underutilized lands.
		d. Cost to local taxpayers	L	H	M	Local costs include operating expenses and local match for grant
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	N/A	N/A	N/A	

BRT ROUTING: MAIN STREET EAST, EASTERN TERMINUS						
GOAL	**OBJECTIVE**	**CRITERION**	**Thurston Station**	**Thurston HS - Service All Day**	**Thurston HS - Service at Peaks Only**	**Comments/Notes**
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Base ($37 million)	Add $1.5 million ($38.5 million)	Add $1.5 million ($38.5 million)	One additional station and one additional peak bus required.
	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	L	M	M	Higher number of stops and additional routing has more potential for impacts
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	H	L	M	System Plan shows service to Thurston Station
		b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	M	M	M	All options consistent within HFN network
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	Base 2,419 Acres/ 1,455 properties	159 more acres 2,578 Acres/ 1,481 Properties	159 more acres 2,578 Acres/ 1,481 Properties	Within 1/2 mile from stations. Underutilized land is defined as having less improvement value than land value
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	L	M	M	Possible reduction of parking at Thurston High School or and/on-street parking

BRT ROUTING: MAIN STREET EAST, EASTERN TERMINUS						
GOAL	**OBJECTIVE**	**CRITERION**	**Thurston Station**	**Thurston HS - Service All Day**	**Thurston HS - Service at Peaks Only**	**Comments/Notes**
		e. Local jobs created by project construction	Base (380 direct & indirect jobs)	20 more jobs created (400 direct & indirect jobs)	20 more jobs created (400 direct & indirect jobs)	Based on capital cost
		f. Percentage of current and planned population within ½ mile of FTN stop	Current: 9.1% Planned: 8.1%	Current: 9.5% Planned: 8.5%	Current: 9.5% Planned: 8.5%	Based on regional model data. Shows percent of metro area population served by the stops.
		g. Percentage of current and planned employment within ½ mile of FTN stop	Current: 8.2% Planned: 8.4%	Current: 8.3% Planned: 8.6%	Current: 8.3% Planned: 8.6%	Based on regional model data. Shows percent of metro area employment served by the stops.
	3.2 Enhance the aesthetics of the corridor to improve economic activity	a. Potential impact to street trees, landscaping	L	M	M	Additional stops create more potential for impact
		b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	L	M	M	Additional stops create more opportunities
		c. Potential impacts to the natural environment	L	M	M	Additional stops create more potential for impact
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	L	M	M	Additional stops create more opportunities

BRT ROUTING: MAIN STREET EAST, EASTERN TERMINUS						
GOAL	**OBJECTIVE**	**CRITERION**	**Thurston Station**	**Thurston HS - Service All Day**	**Thurston HS - Service at Peaks Only**	**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	NA	NA	NA	No additional stops on Main Street
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	NA	NA	NA	No additional stops on Main Street
	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	NA	NA	NA	McVay Segment not affected
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	NA	NA	NA	McVay Segment not affected

BRT ROUTING: MAIN STREET EAST, EASTERN TERMINUS						
GOAL	OBJECTIVE	CRITERION	Thurston Station	Thurston HS - Service All Day	Thurston HS - Service at Peaks Only	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	L	M	M	Additional stops create more potential for impact
		b. Impact on freight and delivery operations for Corridor businesses	L	L	M	Additional routing and stops create more potential for impact
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)	H	M	M	Potential for unsignalized crossing near stop at Thurston High School
		b. General assessment of safety for persons with mobility challenges	L	M	M	Better access with additional stop
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	L	H	M	Additional routing and stops create more potential for impact
		d. General assessment of potential to reduce the number of bicycle / vehicle collisions	L	L	L	Additional routing and stops create more potential for impact
	4.2 Enhance the security of transit users and of the corridor as a whole	a. Amount of added street lighting	N/A	N/A	N/A	Street lighting not impacted
		b. Amount of added lighting at / near transit stops	L	M	M	Additional stops creates more opportunities for improvements

BRT ROUTING: MAIN STREET EAST, EASTERN TERMINUS						
GOAL	**OBJECTIVE**	**CRITERION**	**Thurston Station**	**Thurston HS - Service All Day**	**Thurston HS - Service at Peaks Only**	**Comments/Notes**
		c. Extent and character of stop and station improvements	L	M	M	Additional stops creates more opportunities for 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)	L	M	M	Additional routing and stops create more potential for impact
		b. Impact on current and future year PM peak hour auto / truck travel times	L	M	L	Additional routing and stops create more potential for impact
	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	L	M	M	Additional routing and stops create more potential for impact
		b. Length of new or improved sidewalk in stop and station areas	L	M	M	Additional stops create more opportunities for improvements
		c. Length of new or improved bike lanes in stop and station areas	L	M	M	Additional stops create more opportunities for improvements
		d. Number of bicycle treatments in stop and station areas	L	M	M	Additional stops create more opportunities for improvements

BRT Routing: Main Street Downtown

Table B-3. BRT Routing: Main Street Downtown Data

BRT ROUTING: MAIN STREET DOWNTOWN						
GOAL	**OBJECTIVE**	**CRITERION**	**Couplet**	**2-Way on South A**	**Combo**	**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	Base	Reduce by 1 minute	Reduce by 2 minutes	Use couple (existing route) as the "base" for round trip time
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	M	M	H	South A routing less likely to create delays. More signals reduce reliability. Differences are slight
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	N/A	N/A	N/A	
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	Base	No change	Slight increase	Faster travel time offset by better access
		b. Transit mode share along the corridor	Base	No change	Slight increase	Based on 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	Base (23,400 people)	200 fewer people (23,200 people)	No Change (23,400 people)	Based on regional model data. At this level of concept planning, it is not possible to detail the difference between the couplet and the combo downtown routing option.
		b. Bicycle capacity at stops, stations, and on the bus	N/A	N/A	N/A	Same number of stations for all options
		c. Number of park and ride spaces with direct transit access to major destinations	N/A	N/A	N/A	All options serve existing park and rides. No park and rides are assumed to be added.

BRT ROUTING: MAIN STREET DOWNTOWN						
GOAL	**OBJECTIVE**	**CRITERION**	**Couplet**	**2-Way on South A**	**Combo**	**Comments/Notes**
		d. Assessment of accessibility by persons with mobility challenges	M	L	M	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.	N/A	N/A	N/A	
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	Base	Slight improvement	Slight improvement	Added operating cost divided by added trips
		b. Impact on LTD operating and maintenance costs	Base	Reduce by $50,000	Reduce by $100,000	Annual operating costs based on added travel time.
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	M	M	M	Minimal change to ratings
		d. Cost to local taxpayers	Base	Reduce by $50,000	Reduce by $100,000	Local costs include operating expenses and local match for grant
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	N/A	N/A	N/A	
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Base	minimal change	minimal change	At this level of concept planning, it is not possible to detail the difference between options.

BRT ROUTING: MAIN STREET DOWNTOWN						
GOAL	**OBJECTIVE**	**CRITERION**	**Couplet**	**2-Way on South A**	**Combo**	**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	M	M	M	Unlikely to be differences in impacts
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	M	M	M	All options support BRT system plan
		b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	M	M	M	All options consistent within HFN network
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	Base 2,726 Acres/ 1,512 Properties	67 more acres 2,793 Acres/ 1,526 Properties	No change 2,726 Acres/ 1,512 Properties	At this level of concept planning, it is not possible to detail the difference between the couplet and the combo downtown routing option.
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	L	M	L	South A option may require expansion of the right-of-way at stations
		e. Local jobs created by project construction	Base	No change	No change	The downtown routing would have no effect on number of jobs created.

BRT ROUTING: MAIN STREET DOWNTOWN						
GOAL	**OBJECTIVE**	**CRITERION**	**Couplet**	**2-Way on South A**	**Combo**	**Comments/Notes**
		f. Percentage of current and planned population within ½ mile of FTN stop	Current: 9.5% Planned: 8.5%	Current: 9.0% Planned: 8.4%	Current: 9.5% Planned: 8.5%	Based on regional model data. Shows percent of metro area population served by the stops. At this level of concept planning, it is not possible to detail the difference between the couplet and the combo downtown routing option.
		g. Percentage of current and planned employment within ½ mile of FTN stop	Current: 8.3% Planned: 8.6%	Current: 8.3% Planned: 8.5%	Current: 8.3% Planned: 8.6%	Based on regional model data. Shows percent of metro area population served by the stops. At this level of concept planning, it is not possible to detail the difference between the couplet and the combo downtown routing option.
	3.2 Enhance the aesthetics of the corridor to improve economic activity	a. Potential impact to street trees, landscaping	L	M	L	South A option may require expansion of the right-of-way at stations
		b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	M	M	M	Same number of stops for all alternatives
		c. Potential impacts to the natural environment	L	L	L	Unlikely to be significant impacts to natural environment because downtown is developed

BRT ROUTING: MAIN STREET DOWNTOWN						
GOAL	**OBJECTIVE**	**CRITERION**	**Couplet**	**2-Way on South A**	**Combo**	**Comments/Notes**
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	M	L	M	Main Street stops more likely to provide opportunities for streetscape improvements
	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	M	L	M	Only Couple and Combination options have stops on Main Street
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Main Street projects	M	L	M	Only Couplet and Combination options have stops on Main Street
	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	NA	NA	NA	McVay Segment not affected
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	NA	NA	NA	McVay Segment not affected

BRT ROUTING: MAIN STREET DOWNTOWN						
GOAL	**OBJECTIVE**	**CRITERION**	**Couplet**	**2-Way on South A**	**Combo**	**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	L	M	L	South A option may require expansion of the right-of-way at stations
		b. Impact on freight and delivery operations for Corridor businesses	L	L	M	Contraflow transit lane reduces eastbound capacity
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)	L	M	L	South A option requires more pedestrian crossings
		b. General assessment of safety for persons with mobility challenges	L	M	L	South A option requires more pedestrian crossings and longer walking distance
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	L	L	M	Contraflow transit lane creates additional conflicts
		d. General assessment of potential to reduce the number of bicycle / vehicle collisions	M	M	L	Contraflow transit lane reduces bike conflicts on Main Street
	4.2 Enhance the security of transit users and of the corridor as a whole	a. Amount of added street lighting	N/A	N/A	N/A	Street lighting not impacted
		b. Amount of added lighting at / near transit stops	M	M	M	Same number of stations for all options
		c. Extent and character of stop and station improvements	M	N/A	N/A	Street lighting not impacted

BRT ROUTING: MAIN STREET DOWNTOWN						
GOAL	**OBJECTIVE**	**CRITERION**	**Couplet**	**2-Way on South A**	**Combo**	**Comments/Notes**
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	M	H	Contraflow transit lane reduces eastbound capacity, eastbound transit lane at 5th increases signal delay
		b. Impact on current and future year PM peak hour auto / truck travel times	L	M	H	Contraflow transit lane reduces eastbound capacity, eastbound transit lane at 5th increases signal delay
	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	L	M	M	Contraflow lane may be confusing for pedestrians
		b. Length of new or improved sidewalk in stop and station areas	M	M	M	Same number of stations for all options
		c. Length of new or improved bike lanes in stop and station areas	M	M	M	Same number of stations for all options
		d. Number of bicycle treatments in stop and station areas	M	M	M	Same number of stations for all options

BRT Routing: McVay South

Table B-4. BRT Routing Options: McVay South Data

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Old McVay Hwy**	**Old Franklin**	**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	Base	No change	Minimal travel time differences
	1.2 Improve transit service reliability	a. On-time performance (no more than 4 minutes late) of transit service	Base	Slight improvement	McVay approach at 30th is congested in morning times
	1.3 Provide convenient transit connections that minimize the need to transfer	a. Number of transfers required between heavily used origin-destination pairs	N/A	N/A	
	1.4 Increase transit ridership and mode share along the corridor	a. Average weekday boardings on Corridor routes	Base	No change	McVay may be slightly better to development along McVay Highway
		b. Transit mode share along the corridor	Base	No change	Mode split related to 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	Base (23,400 people)	No substantive change (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	N/A	N/A	Same number of stations
		c. Number of park and ride spaces with direct transit access to major destinations	N/A	N/A	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	L	M	Rated on distance to stop for the greatest number of people

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Old McVay Hwy**	**Old Franklin**	**Comment/Notes**
	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.	N/A	N/A	Changes do not impact 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	Base	No change	
		b. Impact on LTD operating and maintenance costs	Base	No change	Assume no travel time differences
		c. Meet or exceed FTA's Small Starts requirements for cost-effectiveness	M	M	Options do not affect SS ratings
		d. Cost to local taxpayers	Base	No change	
	2.2 Increase transit capacity to meet current and projected ridership demand	a. Capacity of transit service relative to the current and projected ridership	N/A	N/A	
	2.3 Implement corridor improvements that provide an acceptable return on investment	a. Benefit/cost assessment of planned improvements	Base ($37 million)	No change ($37 million)	Shows Capital Cost only. Cost is for stations and peak bus requirements
	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	Base	No change	Assumed 1/3 mile stop spacing which is most consistent with BRT Plan.

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Old McVay Hwy**	**Old Franklin**	**Comment/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	M	L	BRT System Plan shows McVay Highway
		b. Support for the Springfield Transportation System Plan (STSP) Frequent Transit Network (FTN) concept	M	M	All options consistent within HFN network
		c. Amount of vacant and underutilized land within ½ miles of stops/stations	Base (2,726 Acres/ 1,512 Properties)	148 fewer acres 2,578 Acres/ 1,481 Properties	Within 1/2 mile from stations. Underutilized land is defined as having less improvement value than land value
		d. Acquisitions and/or displacement of residents measured in acres of property acquired and residential unit and parking displacements	LM	L	McVay Option may require queue jump at 30th
		e. Local jobs created by project construction	Base	No change	The routing options would not have an impact on the number of jobs created.
		f. Percentage of current and planned population within ½ mile of FTN stop	Current: 9.5% Planned: 8.5%	Current: 9.5% Planned: 8.5%	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. Based on regional model data. Shows percent of metro area population served by the stops.
		g. Percentage of current and planned employment within ½ mile of FTN stop	Current: 8.3% Planned: 8.6%	Current: 8.6% Planned: 8.7%	Based on regional model data. Shows percent of metro area population served by the stops.
	3.2 Enhance the aesthetics of the corridor to improve economic activity	a. Potential impact to street trees, landscaping	L	L	Small number of street trees, landscaping in area that could be impacted
		b. Number of transit-related visual elements identified in adopted plans that would be implemented by alternative	L	L	Transit-related visual elements not identified in adopted plans

BRT ROUTING: MCVAY SOUTH					
GOAL	OBJECTIVE	CRITERION	Old McVay Hwy	Old Franklin	Comment/Notes
		c. Potential impacts to the natural environment	L	M	Old Franklin a more natural area
		d. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of economic activity areas	M	L	Opportunities to improve McVay Highway Streetscape
	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	NA	NA	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	NA	NA	Options do not affect Main Street
	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	NA	NA	Options do not affect Glenwood
		b. Opportunity for streetscape improvements, wayfinding, and design elements that reinforce the community's identity and increase awareness of Franklin Boulevard / McVay Highway projects	NA	NA	Options do not affect Glenwood
	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	M	L	McVay Option may require queue jump at 30th
		b. Impact on freight and delivery operations for Corridor businesses	M	L	More freight traffic on McVay Highway
safety and	4.1 Improve the safety of pedestrians and bicyclists accessing	a. Number and quality of designated (marked) crossings near transit stops (signalized or unsignalized)	M	M	Pedestrian crossing issues for both options

BRT ROUTING: MCVAY SOUTH					
GOAL	**OBJECTIVE**	**CRITERION**	**Old McVay Hwy**	**Old Franklin**	**Comment/Notes**
	transit and crossing Main Street	b. General assessment of safety for persons with mobility challenges	M	M	Pedestrian crossing issues for both options
		c. General assessment of potential to reduce the number of pedestrian / vehicle collisions	M	M	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	M	M	Unlikely to be significant differences in this criterion 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	N/A	N/A	Street lighting not impacted
		b. Amount of added lighting at / near transit stops	M	M	Same number of stations for all options
		c. Extent and character of stop and station improvements	M	M	Same number of stations for all 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)	M	L	More traffic on McVay Highway
		b. Impact on current and future year PM peak hour auto / truck travel times	M	L	More traffic on McVay Highway
	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	M	M	Unlikely to be significant differences in this criterion between the two routing options
		b. Length of new or improved sidewalk in stop and station areas	M	M	Same number of stations for all options
		c. Length of new or improved bike lanes in stop and station areas	M	M	Same number of stations for all options
		d. Number of bicycle treatments in stop and station areas	M	M	Same number of stations for all options