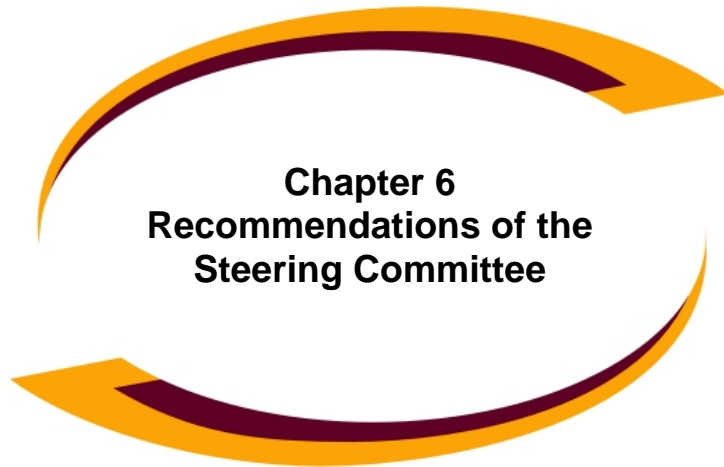


Recommendations of the Steering Committee: Preferred Alternative for High Capacity Transit in the South Valley Corridor

Spokane County Washington

March 22, 2006





Chapter 6 Recommendations of the Steering Committee

Summary Description

The following is a summary of the key components of the Steering Committee's recommended Locally Preferred Alternative. The recommendations are derived from years of conceptual engineering, computer modeling, systems analysis, and community discussions. Additional oversight was provided through periodic reviews by a Citizens Advisory Committee and Technical Advisory Committee comprised of engineering & planning staff from the jurisdictions.

- Develop Light Rail from Downtown Spokane through Spokane Valley to the City of Liberty Lake over an alignment of approximately 15.5 miles.
- Forego electrification and procure diesel powered light rail vehicles
- Use single-car operations with vehicles capable of connecting into multiple unit trains
- Initially develop a single-track alignment with passing tracks for two-way operations
- Provide for simple, modest station platforms, shelters and passenger amenities
- Plan for expansion in the future to double-track with longer stations for multiple-car trains
- Limit the initial capital cost to not exceed a ceiling of \$300 million expressed in 2006 dollars
- Develop an equitable, diversified funding strategy that includes existing resources, private sector participation, and revenues derived from any new taxes subject to approval by voters
- Adopt an implementation timeline that achieves revenue service operations by 2014

Rationale for the Recommendation

This recommendation is made on the basis of multiple phases of planning and alternatives analysis conducted over the past several years. That process resulted in the preparation of a draft environmental

impact statement (DEIS) that describes the alternatives, identifies their associated impacts and provides a comparative evaluation of the alternatives. The DEIS was circulated to the public beginning January 18, 2006. Numerous opportunities for public comment were provided through public meetings, open houses, and public expression at regular STA Board meetings. All relevant comments regarding the DEIS were collected and documented. Over the course of this planning process, the public in the Spokane region were formally and informally surveyed several times as described in chapter five of this document. The recommendation is drawn from the conclusion that the public desires development of a light rail system and that this recommendation will help solve the regional transportation problems cited in this report.

Primary reasons cited include:

- Light rail is desired by the public as an additional alternative to travel by automobile or bus. It will provide additional options to satisfy the regional travel demand for those who choose to use it. Experience from other cities that have developed light rail systems often demonstrates that the public prefers light rail over other modes of travel when it is convenient and reliable. That preference, often referred to as "rail bias", was also reflected in the various statistical surveys and documented feedback from the Spokane region.
- Development of a starter light rail system for the Spokane region is considered a proactive approach to meeting future transportation needs in a manner that is also consistent with the established comprehensive land use plans published by the affected jurisdictions. It is anticipated that

ultimately, a regional light rail system will be far less costly and have less potential for adverse impacts if it is implemented concurrent with or ahead of the growth that is already occurring, thereby helping to positively shape that growth rather than reacting to its adverse effects when future congestion demands relief.

Simulation on Riverside at Napa Street with Enhanced Development Concept



- Studies have shown that development of light rail can serve as a significant catalyst for economic development in the region and in particular, along the corridor within a 1/4 to 1/2 mile radius of the respective station locations. A regional investment in light rail can create new jobs and leverage economic benefits in the form of increased sales and profits to private businesses, increased property values, and growth in tax revenues that accrue to the local jurisdictions.
- Light rail has the greatest potential to be used as a tool to guide future development in a form that optimizes the beneficial relationship between transportation and land use. Light rail transit can assist in the revitalization of under-developed segments of the corridor and help to satisfy the regional vision for a livable community through further development of more dense, mixed-use walkable activity centers and neighborhoods that accommodate auto travel but are less dependent upon it.
- If an implementation decision is made and steps are taken to preserve current opportunities, the light rail system can make use of existing railroad rights of way that are currently available and much of which is in public ownership instead of having to purchase right of way in the future.

Recommended Mode

The recommended mode is a system comprised of Light Rail Transit (LRT) that is integrated with the existing fixed-route bus system and existing road network. This would consist of driver operated vehicles riding on steel rails (standard railroad tracks). The vehicles are capable of operating singly or in multiple unit trains. The scale of the system is intended to fit into the urban fabric of the community, such that smaller light rail vehicles are used rather than the more massive heavy rail or commuter rail vehicles. Passenger boarding stations will consist of low-level platforms of sufficient length and width to accommodate waiting and boarding functions. The stations will include basic amenities such as simple shelters, benches and furnishings. The recommended project is intended to be a **low-cost start up light rail system** that can be upgraded and expanded in the future consistent with the region's growth in accompanying increased travel demand. Initially, it is recommended that the Spokane light rail system operate single-unit light rail vehicles at the following frequency of service, subject to actual schedule integration with existing public bus transit:

- Peak Hours; every 15 minutes – Monday through Saturday from 7:00 AM to 8:00 PM.
- Off-Peak Hours; every 30 minutes – Monday through Saturday from 5:00 AM to 7:00 AM and from 8:00 PM to 11:00 PM.
- Sundays & Holidays; every 30 minutes – All day from 5:00 AM to 11:00 PM.

Diesel Light Rail Vehicle to be used in Oceanside, CA



Vehicles and Propulsion

Two primary types of vehicle propulsion systems are used in light rail systems today. These are electric and diesel. The recommended propulsion system for the Spokane light rail system is the use of diesel technology. This eliminates the need for an electrical power distribution system and can be developed at substantially lower cost. Alternative sources of internal combustion fuels like bio-diesel are becoming more readily available and could eventually lessen the system's dependency on fossil fuels. The use of bio-diesel is also associated with fewer environmental impacts and a potentially significant economic benefit to the regional economy of Eastern Washington. The actual power system / component configuration within the diesel vehicles will be determined during preliminary engineering on the basis of available technology, cost, performance and other considerations. Throughout the alternatives analysis process, there was

substantial interest in selection of an electrically powered system. Arguably, the biggest determining factor in recommending diesel propulsion was a substantial estimated cost saving for initial construction and recurring maintenance costs. However, due to the long-term implications associated with selection of this critical system characteristic, further confirmation of the recommended diesel propulsion system, including a refined analysis of the trade-offs, should occur during the ensuing preliminary engineering phase to ensure this discussion is completed at full depth.

The light rail vehicles will be “double-ended”, meaning that they will include an operator cab on both ends so that the vehicle can be driven in either direction. Typical light rail vehicles range from 85 feet to 125 feet in length with seating for 60 or more passengers. They have a maximum capacity including standees of 140 or more passengers. Vehicles for Spokane would likely be selected through a competitive procurement process.

- Eight diesel light rail vehicles are needed for initial operations.
- The vehicles will initially operate as single units, but will be procured with the ability to train-line for multiple-unit operations.
- Vehicles will be procured with low floors for level boarding with low level station platforms.
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It is desired that standard (“off-the-shelf”) technology that can be competitively procured will be used for the Spokane light rail system.

Simulation at Argonne and Appleway



The Riverline Diesel Light Rail System – New Jersey



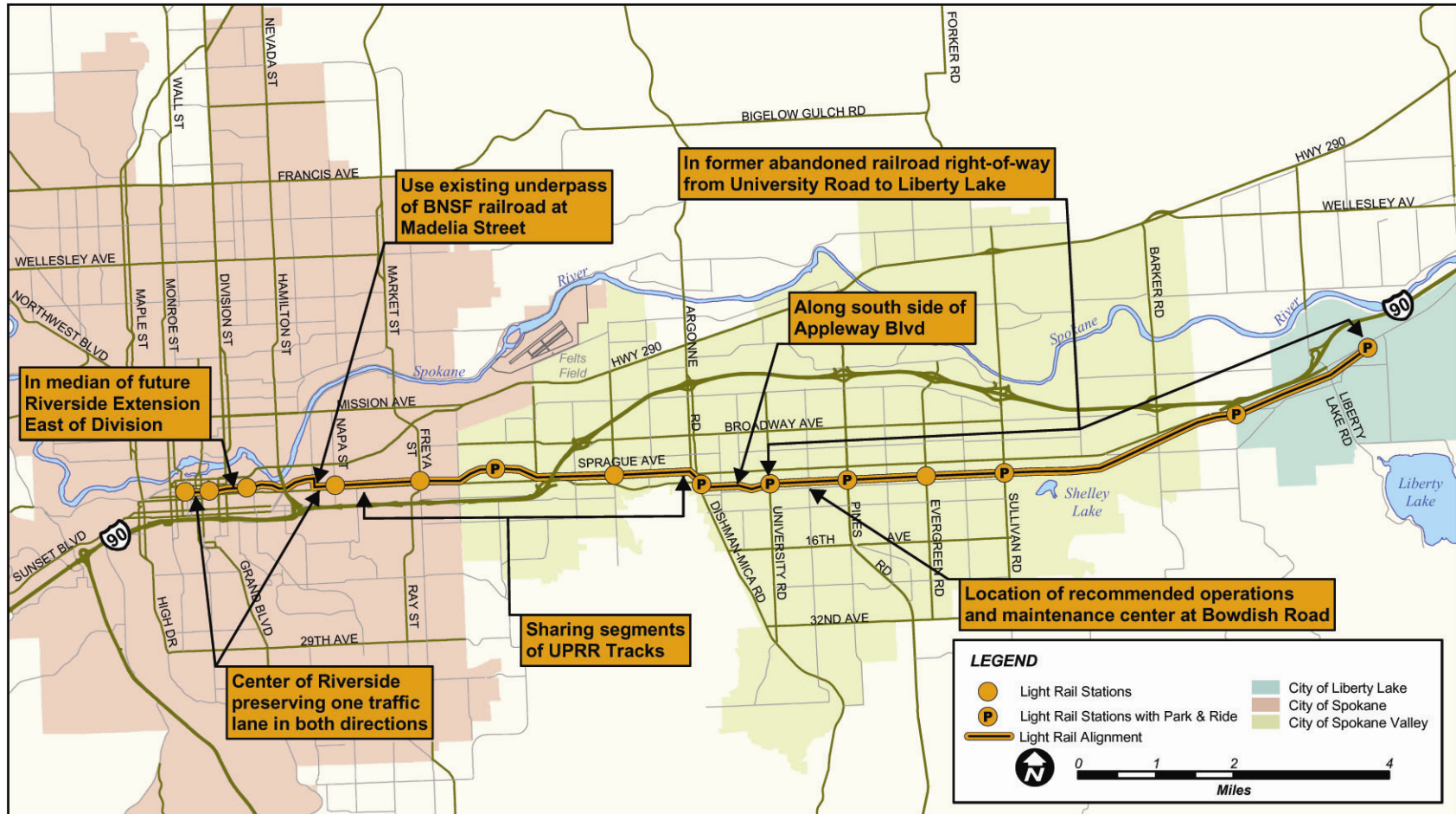
Alignment and Stations

It is recommended that the Spokane light rail system be developed generally utilizing the ***shared track alternative*** alignment and incorporating cost savings measures associated with the ***single track option***. A “Base Alignment” describes the minimum requirements for the recommended system. The cost of this base alignment is anticipated to be below the recommended budget cap for development of the system. There is substantial interest in including a variety of enhancements to the base alignment which will be assessed during preliminary engineering activities to follow. Examples include longer station platforms at the outset to better accommodate future capacity, greater length of passing track to reduce operational constraints, minimized lengths of shared freight/light rail operations, and consideration for a bridge structure to improve safety and traffic flow at the Argonne-Dishman Mica intersection in Spokane Valley. It is noted that substantial trade-offs exist associated with the determination of what enhancements can or should be included in the initial construction of the project. The recommended capital cost ceiling in conjunction with availability of funding will largely determine what can be included in the initial scope.

The ***recommended Base Alignment*** is approximately 15.5 miles in length and is described below. From west to east geographic characteristics include:

- A western terminus at the intersection of Post and Riverside in downtown Spokane.
- Location of light rail track(s) in the center of Riverside Avenue preserving at least one automobile traffic lane in each direction from Post to Division.
- The City of Spokane is planning a phased extension of Riverside Avenue east of Division. The LRT alignment would be located in an exclusive median being reserved by the City for this purpose.
- Exclusive alignment north of the BNSF railway tracks between Division and Madelia Streets.
- Exclusive use of the existing roadway underpass of the BNSF railway tracks for light rail at Madelia Street.
- Location of exclusive light rail track(s) in the center of Riverside Avenue from Madelia Street to Lacey Street.
- Location on or adjacent to the UPRR “Yard Lead” tracks from Lacey Street to the UPRR Spokane Yard east of Havana Street.
- Passage through or adjacent to the UPRR Spokane Yard between Havana Street and Fancher Road.
- Location on or adjacent to the UPRR track known as the “Wallace Branch” between Fancher Road and Dishman Mica Road.
- Location in exclusive right of way along the south side of Appleway Boulevard from Dishman Mica Road to University Road.
- Location in the former Milwaukee Railroad right of way (currently vacant) from University Road to the eastern project terminus in Liberty Lake at Signal Road.

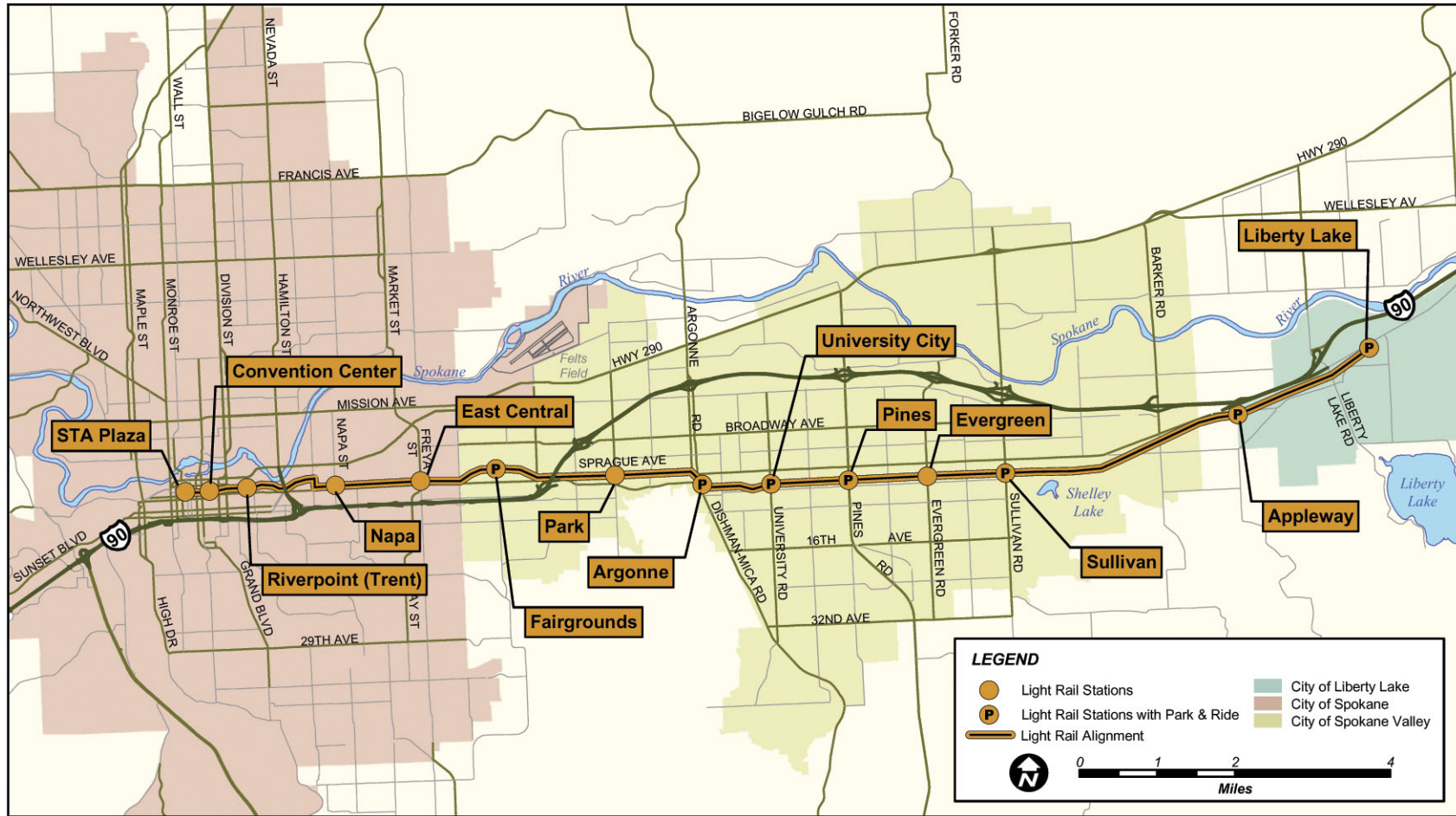
Figure 6-1: Preferred Alternative Alignment Characteristics



Fourteen light rail passenger station locations are recommended for base alignment. These are short, simple stations that accommodate single unit operations (“single-car trains”). It is desired to eventually upgrade the system to allow two-car train operations when justified by ridership. As such, the initial development of stations is intended to plan for increased length and upgrading at the least possible cost. Recommended station locations are:

- **Plaza** – On Riverside Avenue, between Post Street and Wall Street, adjacent to the STA Plaza transit center.
- **Convention Center** – On Riverside Avenue, between Bernard Street and Browne Street.
- **Riverpoint (Trent)** – North of the BNSF Railway tracks at the WSU Riverpoint Campus.
- **Napa** – On Riverside Avenue east of it’s intersection with Napa Street.
- **East Central** – In the UPRR right of way east of Freya Street.
- **Fairgrounds** – East of Havana, south of the Spokane County Fair and Expo Center complex. This station will include construction of a new park and ride facility.
- **Park** – In the UPRR right of way west of Park Road. Consideration of it being an optional station location in the initial phase.
- **Argonne** – In the northwest quadrant of the intersection of Argonne Road and Appleway Boulevard. This station will include construction of a new park and ride facility.
- **University City** – Adjacent to the STA Valley Transit Center, in the southwest quadrant of the intersection of University Road and Appleway Boulevard. This station will capitalize on the existing park and ride facility at this location.
- **Pines** – In the currently vacant, former railroad right of way, east of Pines Road. This station will include construction of a new park and ride facility.
- **Evergreen** – In the currently vacant, former railroad right of way, east of Evergreen Road.
- **Sullivan** – In the currently vacant, former railroad right of way on either side of the intersection with Sullivan Road. This station is intended to include development of a park and ride facility at a site to be determined during preliminary engineering (see “Issues to be Resolved”).
- **Appleway** – Located in right of way to be purchased, in the southwest quadrant of the I-90 interchange with Appleway Avenue / Country Vista Road. This station will include construction of a new park and ride facility.

Figure 6-2 Preferred Alternative Alignment and Station Locations



- **Liberty Lake** – In the currently vacant, former railroad right of way, in the southwest quadrant of the intersection of Appleway Avenue and Signal Road. This station will include interface with or be expanded to replace the existing functions provided by the STA park and ride facility located to the south of the station site.

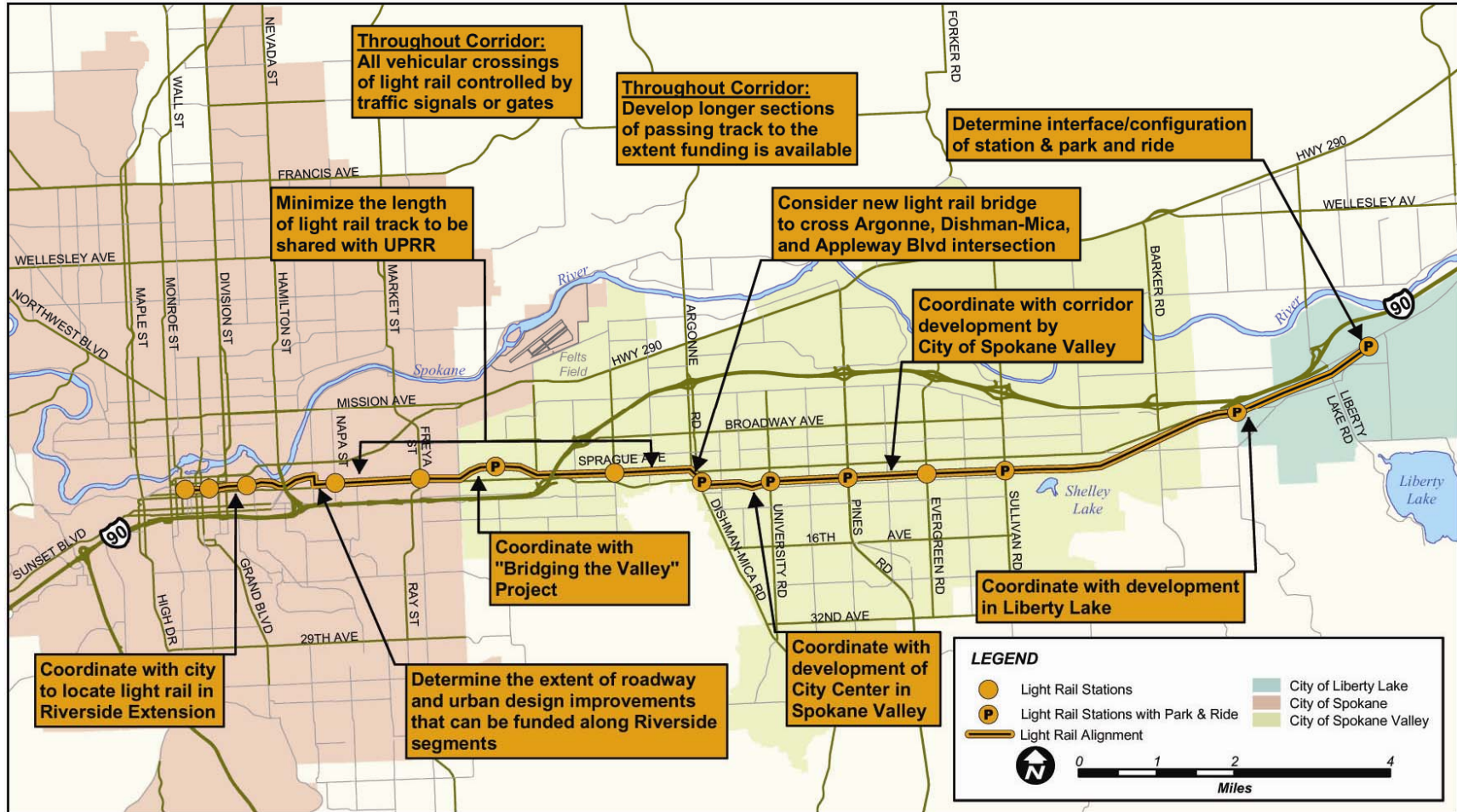
General characteristics of the recommended base alignment include:

- The trackway will be reserved exclusively for light rail throughout its length except for at-grade crossings with roadways and in segments where it may be shared with freight railroad operations.
- All vehicular crossings of the light rail trackway are planned to be controlled either by traffic signals (when operating in paved roadway sections) or by train signals and gates (when operating in alignments separate from roadways).
- When portions of the trackway are shared with railroad operations, the two modes will be separated by time (temporal separation). Exclusivity of the systems will be further ensured through the use of automated signal systems and strict operating rules.
- The base alignment for light rail will initially utilize a single-track alignment with short passing tracks allowing two-way operations. It is desired to increase the length of passing track (double-track) to the greatest extent that the budget will allow, and to eventually upgrade the entire alignment to a double-track system.

- The “Bridging the Valley” project being implemented to include joint use of the BNSF corridor by the UPRR throughout Spokane may eventually include the elimination of the UPRR Spokane Yard and yard lead tracks. It is anticipated, however, that the UPRR Wallace branch line east of the yard will remain in use. The recommended base alignment has been defined to jointly use both of these sections of UPRR trackage. It is desired to minimize direct interfaces with operating railroads through design adjustments and right of way purchases to be determined during preliminary engineering.
- The base alignment will generally utilize at-grade operations with no newly constructed bridges for the project. It will make use of existing bridges and underpasses for grade separation of roadway and railway crossings where available. However, it is intended that a bridge structure may be developed to grade-separate the LRT crossings of the roadway intersections at Appleway / Dishman Mica / Argonne / Mullan Roads in Spokane Valley. The final configuration of this crossing will be determined during preliminary engineering.

- The City of Spokane Valley is currently considering options for development of the former railroad right of way east of University road to include the possible extension of Appleway Boulevard. During preliminary engineering, close coordination of the light rail project with the City will be required. This right of way is currently owned by Spokane County.
- The LRT alignment and stations will be located to minimize the need for right-of-way acquisition and dislocation of existing development by using existing public rights-of-way to the greatest extent available. Right of way should be preserved for full expansion of the system to double-track operations with two-car station platform lengths. Right of way should also be preserved for future expansion of park and ride facilities.
- The LRT project will require some relocation of utilities that are directly impacted by construction. The cost for relocation or protection of public utilities will be borne by the project. Private utilities located in publicly owned rights-of-way which are affected by the project will be relocated at the utility owner's expense. The status of "franchised" utilities will need to be resolved during the preliminary engineering phase.
- In segments where the LRT project interfaces with existing roadways, it is intended that the impacted roadways will only be re-paved in the area disturbed by construction of the tracks (not curb-to-curb). However, this will require further coordination with the jurisdictions during the preliminary engineering phase to ensure compliance with other established policies and procedures.
- The recommended base alignment definition does not include improvements to adjacent right-of-way, including corridor landscaping. A landscape allowance will be provided at station locations.

Figure 6-3: Issues for Analysis During Preliminary Engineering



Operations and Maintenance Center

The Spokane Light Rail System will require an operations and maintenance center capable of storing and servicing the initial fleet of light rail vehicles. This center will also serve as a central control and dispatching location. It is recommended

that conversion of Spokane Transit's "Fleck Service Center" be pursued to satisfy this function. The facility is located adjacent to the recommended light rail alignment just east of its intersection with Bowdish Road.

Figure 6-4: STA Fleck Service Center – Proposed LRT Operations and Maintenance Center



The existing facility includes a building with bus maintenance bays, a wash bay, offices, locker rooms, parts storage capability and fueling facilities. It appears to be convertible to serve the intended purposes

and of a size that can accommodate initial system needs. Activities during preliminary engineering will need to verify the suitability and availability of this location for the light rail operations and maintenance center.

Consideration should also be given to other, larger locations that can better accommodate long-term future expansion of the system.

Project Cost

As previously stated, the recommended project is intended to be a **low-cost start up light rail system** that can be upgraded and expanded in the future. It is recommended that a budget for project implementation be established not-to-exceed \$300M (2006 \$). The actual budget will depend on resources made available through development of a financial plan that is to be developed (see next section).

It is anticipated that development of the “Base Alignment” along with some additional enhancements is achievable within this recommended budget cap. During alternatives analysis, the cost of the “single track option” (most similar to the base alignment) was estimated to be \$226.5 million in 2008 dollars. However, there are several risks for cost escalation that are not accommodated in that estimate, including:

- Recent worldwide increases in the cost of steel and concrete.
- Costs for acquisition of railroad rights of way and trackage rights that have not yet been negotiated.
- Financing costs that depend on the actual plan for funding that is not yet developed.
- Assumptions regarding timing for completion of the Bridging the Valley project that are now unlikely to be achieved.

- Enhancements in the project definition that may be desired or required by project sponsors and local jurisdictions.
- Preservation of opportunities for future project expansion, including right of way purchases.
- Other likely unforeseen issues to be resolved during preliminary engineering and later stages of project implementation.

Because of these uncertainties as well as the need to provide the highest quality system that is locally affordable, it is recommended that the \$300M budget cap be established for (capital cost) project implementation. This includes final design, vehicle procurement, real estate acquisition, construction, testing and start-up activities. It is recommended the project’s work program during preliminary engineering resolve the outstanding issues regarding project definition, perform an assessment of risks and include an analysis of trade-offs regarding options for enhancement of the base alignment described herein.

Annual cost for operation of the project is estimated to be \$6.2 Million (2004 dollars). This cost will need to be verified during preliminary engineering. Both capital and operating costs will need to be accommodated by the project’s financial plan.

Project Funding

Implementation of the Spokane light rail system requires a comprehensive financial plan that can ensure that adequate financial capacity exists to design, build, operate and maintain the system. In addition, continued operation and expansion of the regional bus system by the Spokane Transit Authority must also be assured. Surveys of voters in the region demonstrated that they are not likely to approve full funding for this system solely from increases in sales tax revenue. The most recent survey indicated that over 90 percent of those who support an investment in light rail desire that it be available in 10 years or less.

The federal “New Starts” program administered by the Federal Transit Administration provides significant funding to many rail transit projects around the country. The amount of available funding from this source is far less than the demand for new projects around the country. In addition, federal policy dictates that these limited funds be directed only to cities with the greatest amount of existing traffic congestion. It has been concluded that obtaining a large percentage of funding from this source is unlikely.

It is therefore recommended that the financial plan be developed with the following characteristics:

- A diversified funding package focused on local control.
- Preservation of options for federal funding depending on future policies, but not dependent on New Starts funding at this time.
- Reallocation of federal formula funding that is currently available for regional

transit funding to provide a portion of funds for the project.

- Pursue a combination of funding sources anticipated to include:
 - Some level of revenue from additional tax sources (sales tax, property tax, etc.).
 - Participation by property owners and businesses that would directly benefit from implementation of the project.
 - Revenue from advertising and sponsorship of components of the project.
 - Participation by local governments along the corridor.
 - Tax increment financing.
 - Funding from the State of Washington.

Implementation Milestones and Timeline

Several key activities and milestones must be achieved to implement the preferred alternative recommendation. The boards of directors of the Spokane Regional Transportation Council and the Spokane Transit Authority, as joint sponsors of the project, must first confirm their acceptance of the recommendation as presented or as they may choose to modify. As the lead local agency designated by these boards, the STA Board must then formally act. Following formal acceptance by the STA Board, the following milestones are among the key steps to project implementation.

Based on the public's stated interest for near-term implementation of light rail ¹ it is recommended that a schedule be developed to achieve revenue service of the light rail project by 2014.

- Adoption of the Preferred Alternative by the Spokane Transit Authority Board of Directors;
- Development of Financial Plan for implementation of the Preferred Alternative;
- Development of Project Management Plan;
- Development of Intergovernmental Agreements;
- Public vote for local tax support;
- Legislative actions, yet to be determined that may be required to enable financial plan implementation;
- Other local government actions to implement financial plan recommendations;
- Preliminary engineering;
- Completion of the final environmental impact statement (FEIS);
- Final design;
- Vehicle procurement;
- Right of way acquisition;
- Construction;
- Safety certification and testing; and
- Revenue service.

¹ Moore Information Survey, January 2006