Spokane Regional Light Rail Project
Sprague Alignment Design Options Review

Introduction and Background

The Spokane Region is currently conducting alternatives analysis for high capacity transit such as light rail or bus rapid transit for the Spokane South Valley Corridor. This corridor links the central business districts of the cities of Spokane, Spokane Valley, and Liberty Lake. It also provides additional east-west travel options within the regional transportation system.

Project Purpose

The purpose of the proposed project is to:

- Provide an integrated, multi-modal transportation system that offers additional alternatives to the existing surface transport network that are affordable and effective for the community;
- Enhance the region's quality of life through surface travel congestion relief and improved air quality;
- Provide an environmentally sound transportation system that would support planned regional population growth and stimulate economic development consistent with the Washington State Growth Management Act;
- Provide additional mobility links to regional growth centers and employment areas;
- Seize the opportunity presented by an available right-of-way in an important transportation corridor; and
- Help implement state, regional, and local planning policies that address air quality, urban sprawl, and traffic congestion relief.

Project History

For many years, elected officials and transportation planners from around the Spokane region have been considering ways to accommodate future growth. The South Valley Corridor Light Rail project emerged after more than twenty years of careful consideration of regional transportation needs and potential solutions by the Washington State Department of Transportation (WSDOT), the Spokane Regional Transportation Council (SRTC), Spokane County, and other local jurisdictions.

Planning studies leading up to the current phase of effort have included:

- *The Feasibility of Light Rail Transit for Spokane*, Washington State Transportation Center, a cooperative research group supported by WSDOT, the University of Washington and Washington State University, completed in March, 1985.
- *High Capacity Transportation (HCT) System Plan Phase I Study*, the Spokane Regional Transportation Council (SRTC), completed in 1993.
- *Phase II Study HCT System Plan*, SRTC, completed in 1994.
- *Spokane Valley Transportation Study*, SRTC, completed in 1995.
- *South Valley Corridor High Capacity Major Investment Study* (MIS), SRTC, completed in 1998.

These previous studies assessed regional transportation needs, determined that the South Valley Corridor is the highest priority for initial implementation of high capacity transit, and established the mode of choice for high capacity transit as light rail or bus rapid transit. These previous studies advanced the project to its current conceptual design status regarding alternatives analysis and environmental impact assessment.

Current Activities and Alternatives

Conceptual engineering documents and a Draft Environmental Impact Statement (DEIS) are currently being prepared for the proposed project. The conceptual engineering will provide a sufficient level of detail on a range of alternatives, including Bus Rapid Transit (BRT) and Light Rail Transit, (LRT), so that those alternatives can be evaluated in the DEIS for environmental impacts and transportation benefits. The DEIS also presents the technical analysis to the public so that they may comment. On the basis of the technical documentation developed, regional decision makers will decide which alternative to implement.

Transit-oriented development (TOD) studies have been completed for two of the project's station locations, University City and Liberty Lake. The University City TOD study proposes a framework plan that could guide the future development of the University City area in the vicinity of Sprague and Appleway near their intersection with University Road.

As of September 2003, the following alternatives were under active consideration for the project:

- Light Rail, using either electric or diesel propulsion, and either double track or single track with passing tracks. Design options include:
  - Downtown Spokane to Liberty Lake, using track entirely separated from the existing freight railroads in the corridor ("Separate Track Option");
  - Downtown Spokane to Liberty Lake, using segments of track shared with freight railroads ("Shared Track Option");
  - A minimum operable segment ("MOS") of Light Rail from downtown Spokane to University City, with Bus Rapid Transit strategies developed initially out the remainder of the corridor to Liberty Lake.

- Bus Rapid Transit (BRT), from downtown Spokane to Liberty Lake. This is a premium bus service designed to emulate a light rail system through the use of special techniques designed for this project as follows:
  - Premium limited stop bus service focused on the corridor between Downtown Spokane, Spokane Valley and Liberty Lake
  - Fixed bus routing largely on existing roadways
  - Queue bypass strategies allowing buses to get around congested intersections
  - Enhanced bus stops with special amenities at limited stop locations
  - Enhanced transit passenger information systems
  - Incident management systems through the Regional Transportation Management Center
  - Unique, premium quality buses serving the BRT corridor
  - Construction of new park and ride facilities at selected locations
  - Other bus service enhancements supporting the BRT corridor

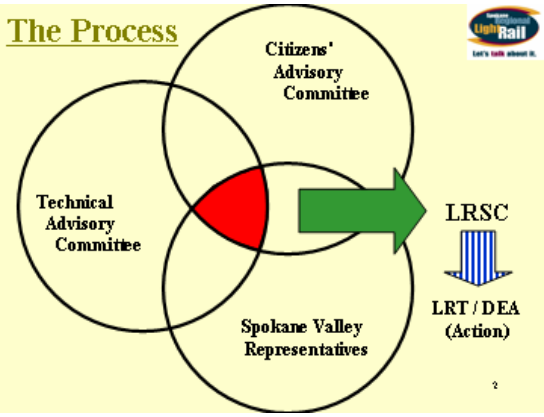
Throughout project development, the light rail alignment options within what is now the City of Spokane Valley have focused on the UPRR corridor, Appleway Boulevard and the former Milwaukee RR corridor east of University Road which is now vacant and publicly owned. One of the project's principal objectives was to seize the opportunity presented by the availability of existing and former railroad rights of way. Therefore, an alignment along Sprague Avenue was not considered to this point.

City of Spokane Valley Request:
A "scoping meeting" was held in September 2003 in accordance with the National Environmental Policy Act, as required for federal initiatives as part of the mandatory public involvement process. The meeting's specific purpose was to include the University City Light Rail (MOS) design option and the BRT alternative into the overall environmental impact assessment process leading up to publication of a Draft Environmental Impact Statement. Comments received included a request from a staff member of the City of Spokane Valley for consideration of alignment options for light rail along Sprague Avenue.

Sprague Alternative (Design Options) Definition and Decision Process

Spokane Valley's request did not include a specific alignment desired for consideration. Therefore, numerous discussions were conducted separately and jointly over the following two months among the project's technical staff and with the city of Spokane Valley staff, the Technical Advisory Committee (TAC), the Citizens Advisory Committee (CAC), and representatives from the Spokane Regional Transportation Council.

The Light Rail Steering Committee formally approved review of additional alignment options along Sprague Avenue at its November 2004, meeting. The purpose was to determine whether a Sprague alternative has sufficient merit to be added for detailed development and consideration in the DEIS. Sprague alignment options developed through this process are referred to as "design options" for the "light rail alternative" being considered by the project. The process adopted by the Steering Committee for consideration of additional alignment options is based on an overlapping review process with the Spokane Valley Staff, Citizens Advisory Committee, and Technical Advisory Committee, as shown in the below illustration.



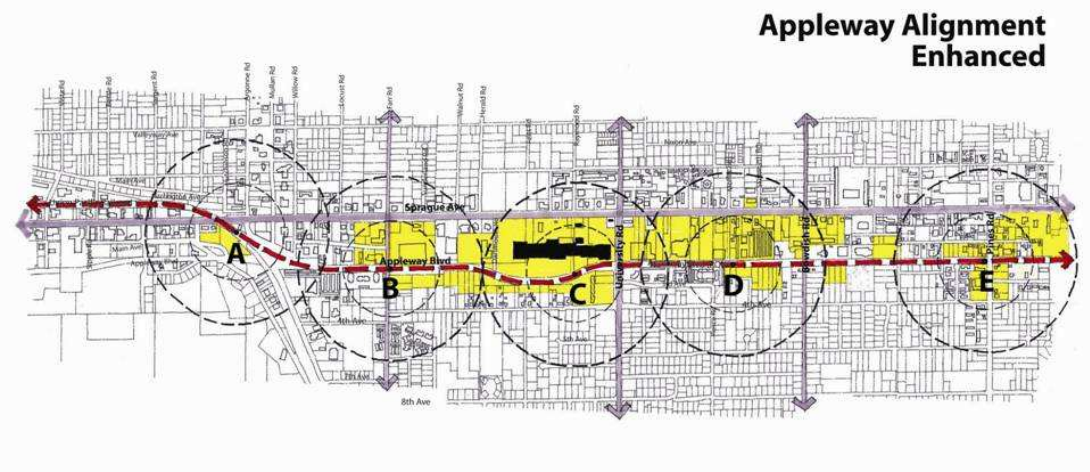
General Guidelines for Additional Alignment Options Analysis:

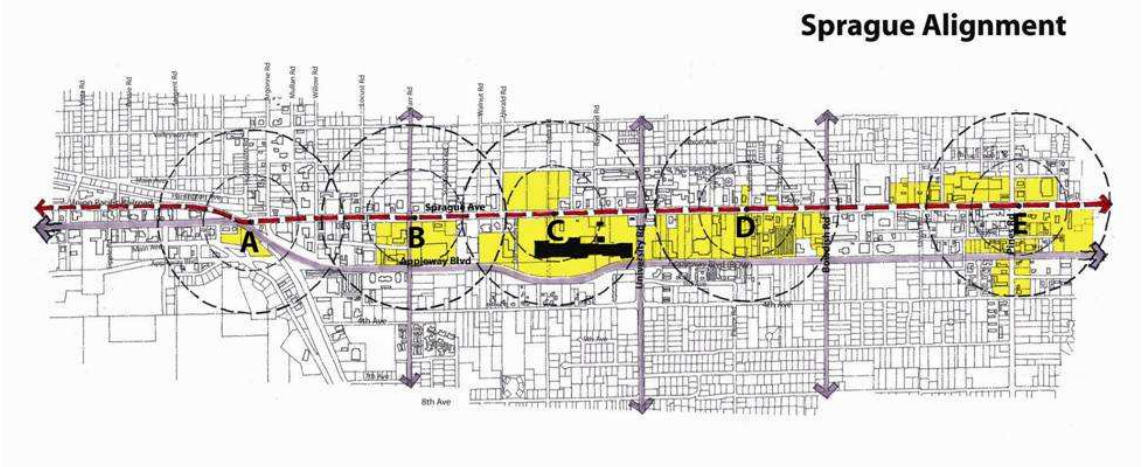
The Steering Committee provided the following guidance in support of the established policy goals and project development that had been completed over several years.

- The project's current alternatives/design options remain valid
  - electrified, dual-track light rail
  - diesel multiple units on single/shared track
  - bus rapid transit
- New options must be consistent with scope of Major Investment Study, 1998
  - Contained within South Valley Corridor
  - Limited to light rail or bus rapid transit
- Alignment review limited to within the boundaries of the City of Spokane Valley
  - Light rail operation on Sprague Avenue requires 2-way traffic
  - Subtle variations are to be treated as the same option
- Limited to "best known" information
  - Current configuration of Sprague / Appleway
  - Changes consistent with Metropolitan Transportation Plan
  - East Valley Couplet alternatives: extend, eliminate, or retain as is
- Consistent with regional land use planning
  - Complies with County-wide planning policies
  - Follows established or pending land use plans
- Must fit within current authorized scope of project
  - Review process should fit within the established overall project schedule and budget
- Priority to look for "fatal flaws" that might eliminate options
  - Minimize work on infeasible or impractical design options

Development of Potential Design Options

- The Transit-Oriented Development (TOD) consulting firm, Crandall-Arambula, from Portland, Oregon, were instructed to consider alignment options for both Sprague Avenue and Appleway and comment as to the feasibility of the proposed TOD with respect to either alignment design option. The following charts illustrate their initial review of the alignment alternatives.





- The Citizens Advisory Committee was convened and briefed on the guidelines and issues related to the proposed alignment options review. Included in that discussion was an overview of the status of the on-going transit-oriented development studies being conducted by the firm, Crandall-Arambula. The Citizens Advisory Committee members then developed an unconstrained list of possible design options for consideration. The known impacts and benefits of each of the options were discussed as they were proposed in order to ensure broad, consistent understanding among the committee members.

- The Technical Advisory Committee was similarly convened but separately so the two committees could act with independent perspectives. Again, members were briefed on the guidelines and issues related to the proposed alignment options review, including the status of the transit-oriented development studies. The committee elected to acknowledge the validity of the Citizens Advisory Committee's list of alignment options in order to more quickly begin the process of analyzing them from a technical feasibility standpoint. No additional design options were added as the result of discussions with the Technical Advisory Committee.

For purpose of this activity, the existing alignment for the light rail alternatives under consideration by the project is considered the "Baseline Option" against which all newly identified alignment options are compared. Within the area of consideration defined for this study, the Baseline Option alignment is located along the existing Union Pacific Railroad corridor from Havana to Argonne, then along Appleway to the old Milwaukee RR corridor (now vacant) at University.

Design Options Using Sprague:

Eight new alignment design options were considered for review and are listed below. The baseline option is depicted by a solid (red) line in each of the following illustrations of alignment options. All reasonable options for a light rail alignment along Sprague Avenue, within the boundaries of the city of Spokane Valley were considered. The engineering and planning staffs for Spokane Valley helped identify and agreed with the design options established for review.

1. Stay on Baseline Option until Argonne, then east onto Sprague until University, then south on University, to the east on the old RR corridor right-of-way to Liberty Lake.

2. Go onto Sprague at Havana, then onto Sprague all the way to Liberty Lake.

3. Stay on Baseline Option until University, then north on University, and then east on Sprague to Liberty Lake.

4. Baseline to U-City (Mid-block crossing), then north toward Sprague and back south to RR ROW.

5. Go onto Sprague at Havana to University, then south on University to RR ROW, then east on existing RR ROW.

6. Baseline until Thierman, then south to Sprague, then east to U-City area, then south to Appleway then east on existing RR ROW.

7. Baseline to Fancher, then south to Sprague, then east to Appleway and onto the RR ROW.

Option #7 was subsequently modified to transition from Sprague to Appleway at Thierman to avoid the I-90 interchange. The modified option is referred to as 7a(2), shown below.

8. Baseline to Argonne, then split track so that there is one track eastbound on Appleway and one westbound on Sprague joining together at Tschirley.

The Technical Advisory Committee discussed issues related to the technical feasibility of the above eight options and identified no "fatal flaws". They also felt the range of identified design options was sufficient to cover the issue and that no other options needed to be added. The consultant's technical project staff independently conducted various trouble-shooting activities to determine whether any less apparent fatal flaws existed. None were identified that were deemed to be insurmountable from an engineering standpoint.

Over the course of this process, from November 2003 until February 2004, advancement of the DEIS was suspended. It was determined to be more efficient and cost effective for the contracted environmental engineers and technical staff conducting the required technical analysis to consider all alternatives and design options together. New design options potentially added as the result of this process could be incorporated into the environmental impact assessment process with the least amount of work having to be repeated or duplicated.

Screening of Design Options

A set of screening criteria for the potential alignment design options was jointly developed and agreed upon by those participating in the options review, including both the Citizens and Technical Advisory Committees. The established criteria was encompassed within eight general categories:

- Cost
- Property
- Environmental

- Traffic
- Safety
- Ridership
- Land Use
- Transit Oriented Development (TOD)

Each category included three or more specific screening criteria. There were a total of 32 individual criteria overall in order to fully describe the eight broad categories for evaluation. All assigned ratings were provided in relative comparison to the existing Baseline Option alignment for the project, as previously described. The mechanism was designed to be relatively simple, such that a consistent quantitative comparison could be made between individual perspectives that contained, in part, qualitative ratings. For each criterion, a green, yellow or red rating could be assigned. Green was defined as "better than the existing alignment definition". Similarly, red was defined as being "worse than the existing alignment definition". A yellow rating means either that there is no apparent difference between the proposed design option and the existing alignment relative to this criterion, or that the reviewer has no opinion. A sample copy of the *Screening Criteria Worksheet* is provided at Attachment 1.

Members of the Citizens Advisory Committee, Technical Advisory Committee and project technical staff were then provided with evaluation sheets to rate the suggested design options against the existing alignment under consideration. On separate occasions, prior to conducting actual evaluations of the eight proposed design options, a sample evaluation of an independent alignment not included for consideration was performed. The results were discussed and differences were resolved in order to ensure the greatest consistency during the actual evaluation process. Participating members were then instructed to independently complete the evaluations and provide the results to the project office within 30 days.

Analysis

Seventeen individual reviewers completed the Screening Criteria Worksheets. The results were tabulated and analyzed. No distinction was made between technical qualifications of the individual evaluators, treating the technical staff along with Citizens and Technical Advisory Committee members with equal weight. It was felt that would sufficiently identify technical issues while reflecting representative perspectives of the community at large. Furthermore, to further minimize the influence of individual personalities, all evaluations were reviewed and tabulated anonymously.

A detailed tabulation of raw data, including a summary of multiple, subsequent analyses is provided at Attachment #2. The eight potential alignment options were ranked on the basis of the raw data tabulations then subjected to a series of sensitivity tests. Multiple data tests were conducted to determine whether the data could be representative of the consensus opinion or was overly influenced by diverse, widely varying subjective factors.

Individual discrepancies of discrete criteria ratings can be explained by the demographics of the evaluators. Some members were more technically oriented and comfortable in evaluating technical and cost impacts of a particular option. Others were more representative of the

community at large and would have reflected commonly held qualitative opinions of the respective options.

Analysis methodology is summarized as follows:

- All analysis is on the basis of a relative comparison to the existing or "Baseline Option" alternative. The evaluations of the design options were not intended to be hierarchical comparisons with respect to each other, i.e. evaluators could rate them all the same if their respective relationships to the baseline merited such.
- The mechanism of evaluation allowed quantitative analysis between "red" and "green" ratings assigned to each alignment option. "Yellow" ratings were considered as "pivot points" or median range values only, since they reflect the evaluator's indicated rating of no difference or a neutral effect with respect to the baseline option.
- For each potential design option, the number of red ratings received from the reviewing group was subtracted from the number of green ratings. This resulted in a relative score assignment for each design option that was interpreted to indicate an overall evaluation relative to the baseline. A positive number indicated a better overall ranking and a negative result indicated the option was considered overall worse than the baseline.
- Raw data rankings arbitrarily weighted some evaluation categories higher than others simply because the number of sub-criteria differed among the categories. Therefore, the raw data was normalized by dividing the sum of the relative scores in each category by the number of sub-criteria within the category, thereby weighting the eight evaluation categories evenly.
- The design options were then assigned initial rankings on the basis of the relative raw data summary and normalized scores. Surprisingly, there were no changes to the relative rankings for the respective design options as a result of data normalization. The results are as indicated in the following table:

Raw and Normalized Rankings of Alignment Options

Alignment Option	Raw Score / Rank	Normalized Score / Rank
#1	52 / 2nd	11.4 / 2nd
#2	1 / 4th	-1.7 / 4th
#3	-62 / 7th	-17.5 / 7th
#4	80 / 1st	15.0 / 1st
#5	-46 / 6th	-14.7 / 6th
#6	-25 / 5th	-8.3 / 5th
#7	-138 / 8th	-35.3 / 8th
#8	14 / 3rd	-0.6 / 3rd

- Additional sensitivity analysis was then undertaken relative to the data evaluation. This was done by assigning weighting based on the perceived importance of the evaluation categories. Multiple approaches to weighting the criteria were taken, and the perspectives of several individual reviewers were alternatively considered to test the sensitivity of the evaluations. The results, including multiple weighting schemes and averaged scores are included in the attached summary analysis table at Attachment #2.

Inspection reveals that little change occurred in the overall rankings irrespective of the weightings that were assigned. In every case, design options ranked 1st and 2nd remained the same. This eliminated a concern that the evaluations would be biased towards or against a particular review category or perhaps between quantitative and qualitative perspectives of the individual evaluators. The data proved to be extremely insensitive to individual differences or prejudiced points of view.

- One final data check was performed that attempted to qualitatively rank the respective options based on the "strength" of evaluation for the individual criteria. In this case, the raw data was assigned a color shade between green and red based on the magnitude of the difference of the sum of the number of ratings between green and red. Those whose net green score was twice that of red was colored dark green. Similarly, red scores twice or more in value than the green were assigned a dark red color. For those, red or green, whose relative difference was more than 150% of the other, lighter shades of the greater value were assigned. All relative differences less than 150% were assigned a yellow color as not significant or neutral. This provided a completely different perspective that could be visually assessed for consistency with tabulated quantitative results. Again, the respective options were ranked based on the "intensity" of color towards green or red. Refer to Attachment #2 to view the colorized analysis. This last approach was consistent with other summary analyses and was perhaps the most easily understood evaluation of the options.
- All results were reviewed by the project's technical staff for validity and briefed to the various committees for final critique. No significant objections to the analysis resulted.
- It was therefore concluded that the analysis methodology was valid and represents the collective opinions and diverse perceptions of the reviewers with respect to the relative benefit of the design options considered.

Conclusions

The results of the design options evaluation above were presented to both Citizens Advisory Committee and Technical Advisory Committee meetings. They were discussed, and the following conclusions were concurred by both groups, supported by the evaluation results.

- Eliminate Options #2, #5, #6, and #7 for the following reasons:
  - Inconsistent with current transportation plans of various local jurisdictions
  - Conflicts with existing conditions beyond the control of the project
    -- Recently completed I-90 interchange and/or reversal of existing couplet
  - Major issues exist associated with implementation of these options
    -- Political divisiveness; lack of community consensus
- Eliminate Option #8:
  - The large distance of separation between the two rail couplet alignments (approximately 700 feet) creates significant deficiencies with respect to user access, transit planning, and operational cost effectiveness
- Eliminate Option #3
  - Option lacks sufficient justification to further pursue due to much higher anticipated costs than the existing project definition

- Higher property use impacts including failure to utilize existing publicly owned, vacant railroad right of way
- Anticipated negative impacts in environmental, traffic congestion, and public safety

- Eliminate Option #1
  - Option lacks sufficient justification to further pursue due to higher anticipated costs than the existing project definition
  - Conflicts with existing conditions beyond the control of the project
    -- Requires reversal of recently completed major regional auto traffic couplet
- Option #4 is a subtle variation of the baseline option alignment
  - Highest relative rankings applied to this design option indicating satisfaction with current project alignment
  - Design variations conflict with proposed transit oriented development concepts
- The project will reconsider other design options if and when overriding constraints, such as the current configuration of the Sprague-Appleway couplet, are changed and those changes are reflected in the Metropolitan Transportation Plan for the region.
- The project should proceed with baseline option alignment.

Transit Oriented Development, Options Analysis:

The following results are extracted from the summary report of Crandall-Arambula regarding development potential for station locations along Appleway and on Sprague Avenue. The results further supported the conclusions of the Citizens and Technical Advisory Committees, i.e. that there were not sufficiently compelling reasons to select Sprague Avenue over Appleway with respect to station locations and alignment options at the study location.

TOD Development Potential - University City Segment

Spokane South Valley Corridor Light Rail Project

Sprague Alignment

Station	Gross Area vacant/soft (acres)			Developable Area subtract 25% (acres)			High Density Residential x 24 (units)	Med. Density Residential x 12 (units)	Employment (employees)	Generated Trips (trips/day)		Transit Trips (trips/TOD)
	within 1/4 mile	within 1/8 mile	1/8 to 1/4 mile	within 1/4 mile	within 1/8 mile	1/8 to 1/4 mile	within 1/8 mile	1/8 to 1/4 mile	3 acres x 95 emp.	units x 10.8	employees x 24.88	trips x 10%
A Argonne	4.0	4.0	0.0	3.0	3.0	0.0	72	0	285	778	7,091	787
B Farr	22.0	16.0	6.0	16.5	12.0	4.5	288	54	285	3,694	7,091	1,078
C Felts	40.0	20.0	20.0	30.0	15.0	15.0	360	180	285	5,832	7,091	1,292
D Moffitt	35.0	14.0	21.0	26.3	10.5	15.8	252	189	285	4,763	7,091	1,185
E Pines	32.0	18.0	14.0	24.0	13.5	10.5	324	126	285	4,860	7,091	1,195
Total	133.0	72.0	61.0	99.8	54.0	45.8	1,296	549	1,425	19,926	35,454	5,538

Appleway Alignment

Station	Gross Area vacant/soft (acres)			Developable Area subtract 25% (acres)			High Density Residential (units)	Med. Density Residential (units)	Employment (employees)	Generated Trips (trips/day)		Transit Trips (trips/TOD)
	within 1/4 mile	within 1/8 mile	1/8 to 1/4 mile	within 1/4 mile	within 1/8 mile	1/8 to 1/4 mile	within 1/8 mile	1/8 to 1/4 mile	3 acres x 95 emp.	units x 10.8	employees x 24.88	trips x 10%
A Argonne	4.0	4.0	0.0	3.0	3.0	0.0	72	0	285	778	7,091	787
B Farr	25.0	15.0	10.0	18.8	11.3	7.5	270	90	285	3,888	7,091	1,098
C Raymond	38.0	17.0	21.0	28.5	12.8	15.8	306	189	285	5,346	7,091	1,244
D Moffitt	36.0	21.0	15.0	27.0	15.8	11.3	378	135	285	5,540	7,091	1,263
E Pines	23.0	13.0	10.0	17.3	9.8	7.5	234	90	285	3,499	7,091	1,059
Total	126.0	70.0	56.0	94.5	52.5	42.0	1,260	504	1,425	19,051	35,454	5,451

Summary

The Light Rail Steering Committee was presented the results of the alignment design options review at the January 2004 meeting. The analysis and conclusions were accepted unanimously. Direction was provided to resume work on the existing alternatives analysis and associated environmental impact statement.

There has been no stated or implied opposition or disagreement with the overall evaluation process. It is the opinion of the Steering Committee and project staff that the question put forth at the September 2003 environmental scoping meeting has been adequately and appropriately addressed. Results will be incorporated in the overall project documentation and supporting justification as required.

Attachments

- Alignment Options Screening Criteria Worksheet
- Alignment Options Screening Analysis Tabulated Results

Attachment #1:

Screening Criteria for Additional Alternatives Consideration OPTION # …. Title: ……	RATING		
	Green	Yellow	Red
COST IMPACTS			
- Capital/Construction			
- Operations & Maintenance			
- Secondary Costs			
PROPERTY			
- Minimum Displacement (take actions)			
- Minimum Property Owners Impacted			
- Maximum Use of Public ROW			
ENVIRONMENTAL			
- Improves Air Quality			
- Limits Potential Hazmat Exposure			
- Minimizes Community Disruption			
- Promotes Community Acceptance			
TRAFFIC			
- Reduces Congestion			
- Improves Business Access			
- Improves Access to Transit Facilities			
- Improves Auto Travel Times			
- Improves Transit Travel Times			
- Improves Pedestrian Travel Times			
- Improves Other Mode Travel Times			
SAFETY			
- Increases Vehicle Traffic Safety			
- Increases Pedestrian Safety			
- Increases Transit Rider Safety			
- Increases Bicycle Traffic Safety			
- Increases Emergency Vehicle Access			
RIDERSHIP			
- Increases Transit Ridership			
- Increases Work Trips			
- Better Supports Transit Dependent Riders			
- Enhances Choice Transit (Non-work)			
LAND USE			
- County-Wide Planning Policies			
- Metropolitan Transportation Plan			
- Spokane Valley Comprehensive Plan			
- Promotes "Smart Growth" Policies			
TOD (Transit Oriented Development)			
- Promotes Business Benefits			
- Enhances Transit Oriented Development			
- Accommodates moderate to high density			

Attachment #2:

SPOKANE VALLEY ALIGNMENT OPTIONS REVIEW

Good (G>2R)	Better (G>1.5R)	Neutral	Worse (R>1.5G)	Poor (R>2G)

As Of: January 5, 2004

CRITERIA	OPTION: #1 GREEN	#1 YELLOW	#1 RED	#2 GREEN	#2 YELLOW	#2 RED	#3 GREEN	#3 YELLOW	#3 RED	#4 GREEN	#4 YELLOW	#4 RED	#5 GREEN	#5 YELLOW	#5 RED	#6 GREEN	#6 YELLOW	#6 RED	#7 GREEN	#7 YELLOW	#7 RED	#8 GREEN	#8 YELLOW	#8 RED
(COST)		-1			-1			-1			-1			-1			-1			-1			-1	
Capital Construction	2	6	9	0	3	14	0	5	10	1	5	11	1	1	15	1	4	11	1	3	12	0	4	10
Ops & Maintenance	4	11	2	2	9	6	0	9	6	1	13	3	1	10	6	1	11	5	1	8	8	3	3	9
Secondary Costs	1	5	10	0	5	12	0	4	11	1	5	11	1	2	12	1	4	11	0	4	12	2	5	7
	7	23	21	2	17	32	0	18	27	3	23	25	3	13	33	3	19	27	2	15	32	5	12	26
(PROPERTY)		1			-1			-1			-1			-1			-1			-1			-1	
Minimum Take Actions	5	7	5	2	8	7	1	7	7	2	9	6	1	7	9	2	6	8	1	10	5	2	6	6
Minimum Owners Impacted	4	8	4	2	7	8	1	6	8	3	6	8	1	5	11	1	5	11	1	6	10	2	5	8
Maximum Use of ROW	6	8	3	3	8	6	2	6	7	3	7	7	1	10	6	3	10	3	1	9	6	3	8	3
	15	23	12	7	23	21	4	19	22	8	22	21	3	22	26	6	21	22	3	25	21	7	19	17
(ENVIRONMENTAL)		-1			-1			-1			1			-1			-1			-1			1	
Improves Air Quality	1	12	3	2	8	6	1	11	3	2	15	0	2	11	4	1	11	4	1	9	6	2	12	0
Limits Hazmat Exposure	2	14	1	5	8	3	2	11	2	2	13	2	3	11	3	3	10	3	3	10	2	2	12	0
Minimizes Community Disruption	1	6	10	0	6	11	0	6	10	5	8	4	0	3	14	2	4	11	2	6	10	3	8	8
Promotes Community Awareness	7	7	4	7	5	4	4	9	2	10	7	0	4	9	4	5	8	3	1	8	7	5	6	3
	11	39	18	14	26	24	7	36	17	19	43	6	9	34	25	11	33	21	7	32	25	12	34	11
(TRAFFIC)		1			-1			-1			1			-1			-1			-1			1	
Reduces Congestion	1	6	10	0	5	12	0	5	10	3	12	2	2	3	12	1	7	8	2	4	10	5	6	3
Improves Business Access	13	1	4	9	2	6	6	4	5	12	5	0	9	3	5	6	3	7	4	7	5	8	4	3
Improves Access to Transit	10	4	3	5	6	6	3	9	3	7	8	2	4	11	2	5	9	2	3	9	4	6	3	5
Improves Auto Travel Times	1	9	7	0	4	13	1	6	7	3	11	3	0	8	10	1	8	7	1	8	9	3	9	2
Improves Transit Travel Times	4	8	6	3	9	5	1	8	6	2	7	8	2	9	5	2	10	5	2	6	8	3	9	2
Improves Pedestrian Travel Times	6	10	0	7	10	0	4	11	0	6	10	0	5	11	1	3	12	1	1	11	4	4	8	2
Improves Other Mode Travel Times	2	14	1	4	11	2	2	11	2	2	14	1	3	13	1	1	14	1	1	10	4	2	12	0
	37	52	31	28	47	44	17	54	33	35	67	16	25	58	36	19	63	31	14	53	44	31	51	17
(SAFETY)		1			-1			-1			1			-1			-1			-1			1	
Increases Vehicle Traffic Safety	2	7	8	1	5	11	0	6	9	1	14	2	0	8	9	0	10	6	1	6	9	4	8	2
Increases Pedestrian Safety	4	11	2	6	11	0	2	12	1	7	10	0	4	12	1	3	11	2	1	11	3	2	9	2
Increases Transit Rider Safety	4	11	2	6	7	4	3	8	4	5	10	2	3	9	5	2	11	4	1	8	8	3	11	1
Increases Emergency Access	4	11	2	3	9	5	3	8	4	3	12	2	3	11	3	1	13	2	1	11	4	1	12	1
	5	9	3	2	9	6	0	9	6	1	16	0	2	10	5	3	11	2	1	11	4	1	10	3
	19	49	17	18	41	26	8	43	24	17	62	6	12	50	23	9	56	16	5	47	28	11	50	9
(RIDERSHIP)		1			1			1			1			1			1			1			1	
Increases Transit Ridership	10	6	1	12	4	1	6	7	2	6	10	0	9	7	1	6	10	0	4	7	4	5	7	2
Increases Work Trips	5	9	3	9	8	0	5	8	2	4	13	0	6	10	1	4	12	0	4	7	4	5	8	1
Supports Transit-Dependent Riders	9	7	1	12	4	1	6	8	1	6	10	1	14	6	2	6	10	1	7	6	4	4	8	2
Enhances Choice Transit Riders	9	7	1	8	7	1	4	10	1	8	8	1	5	10	2	3	12	1	2	9	5	3	8	1
	33	29	6	41	23	3	21	33	6	24	41	2	34	33	6	19	44	2	17	29	17	17	31	6
(LAND USE)		1			1			-1			1			1			1			-1			1	
County-Wide Planning Policies	2	11	3	2	12	2	3	9	2	4	12	0	3	11	2	3	9	4	2	9	5	1	12	1
Metropolitan Transportation Plan	2	12	2	2	11	3	0	11	3	3	12	0	1	12	3	2	11	4	1	9	6	1	11	2
Established Comprehensive Plan	2	11	0	3	10	0	0	11	0	3	10	0	3	9	1	3	9	1	1	9	4	1	11	1
Promotes "Smart Growth" Policies	6	9	1	6	8	1	3	8	3	7	8	1	3	10	3	4	11	1	1	8	5	5	7	2
	12	43	6	13	41	6	6	39	8	17	42	1	10	42	9	12	40	10	5	35	20	8	41	6
(TRANSIT ORIENTED DEVELOPMENT)		1			1			1			1			1			1			-1			1	
Promotes Business Benefits	14	2	1	14	2	1	7	6	2	15	2	0	11	4	2	10	4	1	5	7	4	6	5	2
Enhances TOD Potential	12	3	2	13	1	3	6	6	3	13	2	2	7	7	3	10	6	1	4	7	6	8	5	1
ncourages Moderate to High Density	8	7	2	13	2	2	6	7	2	10	5	2	7	6	4	8	7	1	2	9	5	5	7	1
	34	12	5	40	5	6	19	19	7	38	9	4	25	17	9	28	17	3	11	23	15	19	17	4
Sub-Totals:	168	270	116	163	223	162	82	261	144	161	309	81	121	269	167	107	293	132	64	259	202	110	255	96
Relative Score:		52			1			-62			80			-46			-25			-138			14	
																			=>	"Conflict"				

Sensitivity Analysis: [Relative Rank / Score]

RAW DATA	#2 / (52)	#4 / (1)	#7 / (-62)	#1 / (80)	#6 / (-46)	#5 / (-25)	#8 / (-138)	#3 / (14.0)
NORMALIZED DATA	#2 / (11.4)	#4 / (-1.7)	#7 / (-17.5)	#1 / (15.0)	#6 / (-14.7)	#5 / (-8.3)	#8 / (-35.3)	#3 / (-0.6)
WEIGHTED 1 NORMAL DATA	#2 / (36.7)	#4 / (-26.8)	#7 / (-92.1)	#1 / (42.9)	#6 / (-89.6)	#5 / (-52.2)	#8 / (-169.6)	#3 / (-23.8)
INVERSE WEIGHT NORMAL DATA	#2 / (66.2)	#4 / (11.5)	#7 / (-65.7)	#1 / (92.5)	#6 / (-43.0)	#5 / (-22.5)	#8 / (-148.0)	#3 / (18.6)
AVG WEIGHT NORMAL DATA	#2 / (30.9)	#4 / (-28.5)	#7 / -91.3)	#1 / (50.9)	#6 / (-82.2)	#5 / (-52.1)	#8 / (-171.1)	#3 / (-19.1)
WEIGHTED 2 NORMAL DATA	#2 / (0.4)	#4 / (-22.2)	#6 / (-31.4)	#1 / (4.9)	#7 / (-34.3)	#5 / (-22.9)	#8 / (-46.7)	#3 / (-8.3)
WEIGHTED 3 RAW DATA	#2 / (441.00)	#3 / (357.0)	#7 / (-65.0)	#1 / (638.0)	#6 / (80.0)	#5 / (147.0)	#8 / (-492.0)	#4 / (228.0)
WEIGHTED QUALITATIVE DATA	#2	#4	#7	#1	#6	#5	#8	#3