

Southside Transportation Study

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Southside Transportation Study

Executive Summary

The Southside Transportation Study was conducted to help citizens of Spokane County and area agencies better understand, discover, define, and address current and future transportation issues affecting the Southside.

The study was a collaborative effort, partnering the citizens of Spokane, the City of Spokane, the City of Spokane Valley, Spokane County, the Spokane Transit Authority (STA), and the Washington State Department of Transportation (WSDOT), with the Spokane Regional Transportation Council (SRTC).

The Southside Transportation Study researched and analyzed the possible effects various improvements to roadways within the study area would have on the residents of the Southside and those who use Southside roadways for travel to and from work, shopping, and other errands. The study was defined by ongoing public comment, and in conjunction with a team of technical professionals representing the various partnering agencies, the Spokane Regional Transportation Council (SRTC) developed 13 transportation improvement Alternatives. Of the 13 Alternatives, 10 were developed during the course of the public meetings. An additional three Alternatives were developed in response to further input from public and technical staff partners, and two of the Original 10 Alternatives (Alternatives 5 and 6) were modified due to public comment. Each Alternative was analyzed for its individual advantages and disadvantages for Southside drivers (based on Census data for population and employment densities), its challenges to construction, its effect on nearby and “feeder” travel route capacity, its relationship to current and future land use, and its effects on air quality.

For a brief discussion of the Findings for each Alternative, please see Table 1, below. A full discussion of each Alternative may be found in Part II of this study, pages 19-44.

Table 1, Brief Discussion of Findings

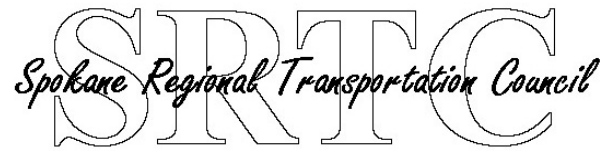
Alternative #	Findings
1 (No Action)	Lower cost than other Alternatives, but increased levels of congestion and cost in lost time for commuters would likely be prohibitive. Air Quality appears to be adequate under the model. Opting for this Alternative would overlook perceived problems with transit systems, pedestrian and bicyclist mobility, and traffic safety issues noted by citizens in numerous public meetings.
	<i>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 9th.</i>
2 (Havana improved between Glenrose and 57 th .)	Extending/improving Havana would provide connectivity to the overall transportation system. This Alternative would moderate (but not eliminate) the need for improvements on Glenrose/Carnahan south of 17 th Ave. The main possible drawback to this Alternative is that vehicles would still travel eastward and use the Carnahan/Glenrose corridors.
	<i>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 5th.</i>
3 (Withdrawn from Consideration Due to Public Input; originally: Extend 17 th Ave. eastward to Park Ave.)	Withdrawn from Consideration Due to Public Input
	<i>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 10th.</i>
4 (Diagonal crossover constructed at Ferris H.S. Two-lanes each direction from the intersection of Ray and 37 th to Freya and just south of 37 th .)	As a stand-alone project, this Alternative appears to have some marginal benefit at the planning level. Some relief at Regal Street and 29 th would occur (unnecessary turning movements), but only a small shift in traffic to the crossover. Future modifications on the transportation system to the south (directing traffic to the crossover), as well as continued development pressure on the Old Palouse Highway, may provide a more compelling case to develop the crossover in the future.
	<i>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 7th.</i>
5 (37 th is one lane in each direction, with a center turn lane from Glenrose to Grand Blvd.)	<i>West of Regal:</i> Improvements appear warranted; it is already a designated City arterial and the established route of choice for many South Hill residents. Addressing improvements that could provide safer and more efficient travel across 37 th Avenue is even more warranted; 37 th Avenue’s current condition indicates it will require future reconstruction.
	<i>East of Regal:</i> It appears several hundred vehicles would make use of the added capacity to travel 37 th East-West across the South Hill. The North-South route selection, however, changes little with the implementation of this Alternative. The justification for this Alternative seems to increase the further east one travels on 37 th .
	<i>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 3rd.</i>

Table 1, Brief Discussion of Findings

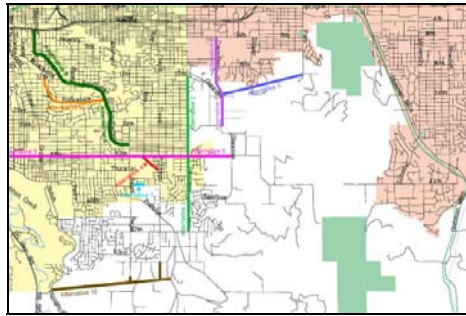
Alternative #	Findings
<p>6 (Install signal at Pittsburg and Rockwood Blvd. and Pittsburg and 29th. Some stop signs would be removed.)</p>	<p>Implementing this Alternative appears to make both Rockwood and Southeast Blvd. more attractive routes for travel, and would provide a high-benefit solution at a low cost. Approximately 750 more vehicles would use this corridor for South Hill ingress/egress. Should this Alternative move forward, design efforts should be employed to use context-sensitive design standards to minimize impacts to residential areas, and to employ traffic calming measures to ensure Pittsburg and Rockwood Blvd. retain their character as predominantly residential streets.</p> <p>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 2nd.</p>
<p>7 (44th Ave. would be extended from Regal to Freya.)</p>	<p>This Alternative appears to provide efficient access to commercial and retail areas on Freya and 57th Avenue for those Southside residents east of Regal and south of 32nd. The model shows about 100 vehicles would actually change from using Freya and Ray to using other North-South thoroughfares such as Bernard, Grand, and Cedar/Maple/Ash for South Hill ingress/egress. Overall, the traffic patterns change only slightly with the modeled implementation of this Alternative.</p> <p>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 8th.</p>
<p>8 (Southeast Blvd., two lanes in each direction from Sprague to the intersection of Regal and 34th.)</p>	<p>Analysis of data from the model shows adding a second lane in each direction on Southeast Blvd. would likely result in a significant benefit to those commuting to and from employment centers or traveling to and from retail/commercial areas in the downtown area. The benefits derived from this Alternative would appear to be cost effective. This Alternative would serve the forecast traffic needs of continued, planned development located in areas around the south part of the South Hill and further into the rural area, and would reduce pressure on other North-South routes such as Ray/Freya, Grand, and “feeder” routes such as Rockwood Blvd.</p> <p>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 6th.</p>
<p>9 (Follow Carnahan Drainage down to 8th Ave.)</p>	<p>From the planning perspective, the only readily apparent benefit this Alternative would have is the reduction in grade from what currently exists on Carnahan Road. Overall traffic patterns are largely consistent with those seen if no improvement were made, and traffic shifts appear to be equal to less than one-half lane of capacity. Connectivity to existing streets on the east side of Carnahan, the disruption to newly established homes in the drainage area, and the floodplain limitation gives this Alternative questionable value.</p> <p>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 1st.</p>

Table 1, Brief Discussion of Findings

Alternative #	Findings
<p>10 (Hatch Rd. stays one lane each direction; new road from Hatch to Palouse Hwy.; connectors to both Regal and Freya.)</p>	<p>From a long-range transportation planning perspective, this Alternative meets many of the primary goals of the Study: To find additional access to and from the South Hill, provide safer pedestrian and bicycle use, and to use under-utilized roadways more effectively to manage the growth traffic resulting from existing and future development.</p> <p>Of special note is that over 1800 vehicles (approximately equal to the capacity of one freeway lane) would shift their travel patterns if this Alternative were implemented, using SR 195/Hatch and the Regal or Freya extensions as a bypass route to reach the downtown area.</p> <p>On a scale of 1-10 (with “1” being the “Most Favored for Further Study, and “10” being the “Least Favored for Further Study”) the public ranked this Alternative 4th.</p>
<p>11 (Carnahan would remain one-lane each direction, but a center turn lane would be added.)</p>	<p>Given the fairly limited scope of improvements, this Alternative offers significant benefits, and is justified at the planning level for further study/possible implementation. In the 2025 forecast model for this Alternative, over 1000 more vehicles selected this improved route than selected the original 2025 route. This Alternative has the added advantages of serving Glenrose-area growth (as outlined in the Comprehensive Plan) and of protecting other major roadways (such as Ray and Freya) from large volume increases seen in other modeling within this study.</p> <p>This Alternative avoids potential conflicts with wetlands, floodplains, wildlife corridors and habitat, while at the same time providing improved mobility for pedestrians and bicyclists.</p> <p>Further design work and possible implementation of this Alternative would need to recognize that it would not mitigate Carnahan’s steep grade. Sanding and de-icing will require priority route treatment and vehicles heading south on Carnahan will continue to experience winter-time challenges climbing the hill.</p> <p>This Alternative was developed from public input after the previous 10 were ranked.</p>
<p>12 (Combination of Alternatives 4, 5, 6 and 7.)</p>	<p>From a transportation planning perspective, this Alternative provides minor adjustments and efficiencies to the existing system, and does not indicate significant benefits that might be expected through the combination of several Alternatives. Overall, this Alternative shows only minor shifts in traffic volumes, with most shifts totaling under 150 vehicles per roadway, and no significant benefit to any thoroughfare.</p> <p>This Alternative was developed from public input after the previous 10 were ranked.</p>
<p>13 (Combination of Alternatives 2, 4, 5 and 7.)</p>	<p>From a transportation planning perspective, this Combination Alternative does provide some internal South Hill circulation improvements, especially with the addition of Havana to the arterial system. Overall, this Alternative shows some minor shifts in traffic volumes, with most shifts totaling fewer than 150 vehicles per roadway. While overall, there does not appear to be a large redistribution of traffic, the efficiency and reduced circuitous travel indicates this Alternative has merit for further study.</p> <p>This Alternative was developed from public input after the previous 10 were ranked.</p>



Southside Transportation Study



Part I

Introduction

This document, the **Southside Transportation Study**, was created to help citizens of Spokane County better understand the current and future transportation needs of Spokane's "Southside" -- an area that runs from the more rural heights of the South Hill to its confluence with more urban Spokane at Interstate 90. The information contained in this document represents more than 18 months of hard work, ten public meetings, three technical/professional meetings with representatives of state, county and city governmental agencies, and the creative, solid input of Spokane County's citizens -- all with one underlying desire: To discover, define, and address the transportation issues affecting the Southside.

➤ *Why was the Study conducted?*

In the fall of 2002, after receiving input from a number of citizens in response to the proposed Southside Arterial plan, Spokane County requested that the Spokane Regional Transportation Council (SRTC) conduct a transportation study that focused on citizen input and subsequently defined prioritized transportation Alternatives for further study. The SRTC was chosen because of its reputation as an unbiased researcher and facilitator of public meetings, and because of its function as the region's Metropolitan Planning Organization (MPO).

The study was conducted to accurately assess transportation needs (as defined by the citizens of the study area) so that area agencies could begin addressing

both current needs and those consistent with long-range, mandated planning into the year 2025.

- *Who should be interested in the results of this study?*

Anyone who lives or works on the Southside, has friends or relatives who live there, or runs errands within the study area, should definitely be interested in knowing what transportation improvements his or her fellow citizens have proposed in this study, and how that may help shape current and future implementation.

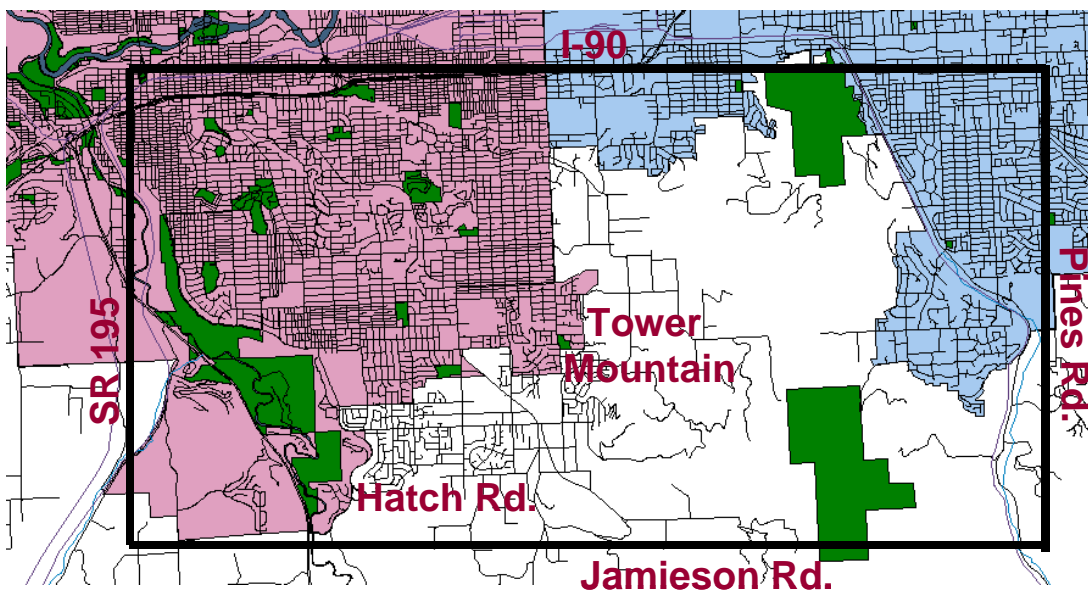
- *In general, what are the net results of studies such as this one?*

When good transportation plans resulting from sound, citizen-driven, computer-modeled studies are transformed from concept to reality by local and/or regional “jurisdictions” (city, county, and state transportation agencies), they can help reduce commute times, make it safer for children to walk to and from school, help encourage environmentally friendly intermodal transportation choices such as bicycling and walking, and alter transit routes to make buses more community-oriented and user-friendly.

- *What were the boundaries of the study area?*

As shown below in Figure 1, the general area studied was bounded in the west by State Route 195, by Pines Road in the east, and ranged from the northern boundary at Interstate 90 to the southern boundary on the South Hill at Jamieson Road, Hatch Road, and Tower Mountain.

Figure 1, Southside Transportation Study Boundaries



➤ *How was the study organized?*

Input for the Southside Transportation Study (SSTS) was solicited from two main sources: (1) The citizens living within the study area, and (2) The transportation technical professionals representing city, county, and state transportation agencies (also referred to as “jurisdictions”).

Because the study emphasized eliciting strong and active citizen input, ten public meetings were organized into three “series” held at various locations convenient to Southside residents (University Center, Chase Middle School, Ferris High School, and St. Stephen’s Episcopal Church). The early meetings focused on the collection of citizen-generated travel data and public comments and suggestions. Later meetings took the data, comments, and suggestions generated previously and shaped them into groupings that later became the various Alternatives in this study.

The technical staffs met three times, initially helping to organize the study and later, to consider public-proposed Alternatives, to prioritize Alternatives for possible further study, and to analyze the feasibility of each.

➤ *Who participated in the study?*

The Southside Transportation Study was a collaborative effort. Partners in the Southside Transportation Study included the citizenry of Spokane, the City of Spokane, the City of Spokane Valley, Spokane County, the Spokane Transit Authority (STA), the Washington State Department of Transportation (WSDOT), and the Spokane Regional Transportation Council (SRTC), the author of this report.

➤ *What did people want? What types of transportation needs were considered?*

In the first series of public meetings, a wide variety of transportation modes were considered and discussed, but the emphases were primarily centered on powered transportation (autos, buses, and light rail), bicycles, and pedestrians. Initially, participants commented primarily on:

- The need for more bike paths,
- The desire for safer walking routes,
- The need for development of bus routes that are more community-centered,
- The need to minimize construction impacts to wildlife, habitat and natural areas,
- Their desire for development or improvement of East-West arterials on the South Hill, and

- Their desire for development or improvement of routes connecting the South Hill to “urban” Spokane.

After the first series of meetings, although bicycle, pedestrian, and transit issues continued to be important, it became clear that the citizens were most focused on studying improvements to routes for auto and truck travel. As a result, the study focused on potential improvements to specific roadways for East-West travel, the improvement of existing North-South arterials, the construction of an additional arterial, and the smoother and safer management of existing traffic flow resulting from possible changes in traffic signals, stop signs, and barriers. Discussion also included the possibility of using more “traffic circles.” From these desires, 13 Alternatives were eventually developed (for a synopsis of the Alternatives, see pages 5 and 6).

➤ *How many people attended the public meetings?*

As mentioned above, the public meetings were organized into three “series.” Approximately 70 citizens participated in each of the first two series of meetings, and approximately 261 participated in the final series, for a total of approximately 401. The totals are “approximate” because some late-arriving participants may not have signed the attendance sheets.

➤ *What happened at the meetings?*

Each series of the public meetings had a different focus. In the first series, for example, the emphasis was on finding out what results the public desired from the study. The second series of meetings focused on information and comments generated in the first series, reviewed existing conditions, and formulated some possible transportation improvements. The third (and final) series of meetings presented the Original 10 Alternatives the public helped formulate in previous meetings. After presenting the Alternatives and the results of computer “forecasting” (modeling), meeting facilitators asked the public to rank the Alternatives. After ranking the Alternatives, sufficient additional comment was received to help SRTC craft an additional three Alternatives.

Like the public meeting series, each agency partner meeting had a different focus. In the first meeting, participants defined the study boundaries, decided on meeting locations for the first series of public meetings, and outlined the overall plan of the study. In the second meeting, SRTC staff briefed the agency partners on the results of the first series of public meetings and facilitated the drafting of discussion points for the second series of public meetings. In the final meeting with agency partners, participants previewed the 10 Original Alternatives, reviewed the analysis of each, and ranked the Alternatives with the same form used by the public.

➤ *What were the main Alternatives citizens helped develop?*

There were a total of 13 Alternatives developed as a direct result of this study (see below). Of the 13 Alternatives, 10 were developed during the course of the public meetings. An additional three Alternatives were developed in response to further input from public and technical staff partners, and two of the Original 10 Alternatives (Alternatives 5 and 6) were modified due to public comment.

For complete results of the computer modeling performed for each of the Alternatives, please see pages 19 to 43 of this document.

ORIGINAL 10 ALTERNATIVES

ALTERNATIVE 1: Alternative 1 is the “No Action” Alternative. Under this Alternative, no physical changes would be made to the current arterial system in the study area. Operational changes such as traffic light optimization and synchronization for better traffic flow would continue to occur as traffic volumes and travel patterns change with growth and development.

ALTERNATIVE 2: Under this Alternative, Havana would be improved between Glenrose in the north and 57th in the south.

ALTERNATIVE 3: This Alternative was withdrawn from further consideration due to public input. The original Alternative formulated was to extend 17th Ave. eastward to Park Ave.

ALTERNATIVE 4: A two-lane each direction “crossover” would be constructed at Ferris High School from the intersection of Ray and 37th on a diagonal to Freya and south of 37th.

ALTERNATIVE 5: *Amended due to public comment.* 37th continues to be one lane in each direction, but a center turn lane would be constructed from Glenrose to Grand Blvd. (Originally, the proposal included a center turn lane extending to High Drive).

ALTERNATIVE 6: *Amended due to public comment.* A traffic signal would be installed at Pittsburg and Rockwood Blvd. and at Pittsburg and 29th. Some stop

signs would be removed on Rockwood Blvd. (Originally, the proposal did not include the traffic signal at Pittsburg and 29th).

ALTERNATIVE 7: 44th Ave. would be extended east from Regal to Freya.

ALTERNATIVE 8: Southeast Blvd. would be widened to create two-lanes in each direction from Sprague to the intersection of Regal and 34th.

ALTERNATIVE 9: A new road would follow the Carnahan drainage down to 8th Ave.

ALTERNATIVE 10: Hatch Road would remain one-lane in each direction with a shoulder on the uphill side. A new road would be added from Hatch Road to the Palouse Highway with connecting roads to Regal and to Freya.

ADDITIONAL ALTERNATIVES DEVELOPED FROM PUBLIC AND AGENCY PARTNER INPUT

ALTERNATIVE 11: Carnahan would remain one-lane each direction, but a center turn lane would be added.

ALTERNATIVE 12: Combination of Alternatives 4, 5, 6 and 7.

ALTERNATIVE 13: Combination of Alternatives 2, 4, 5 and 7.

➤ *Which Alternatives did the public most favor for further study?*

During the final series of three meetings, citizens were asked to consider which Alternatives they would most like to have studied further and to rank them from “Most Favored” to “Least Favored.” Although not all meeting attendees chose to participate, and some attendees chose to give additional written input rather than rank the Alternatives, it seems clear that many attendees favored further study of all but Alternative 3, which was adamantly opposed.

Table 2, Ranking of Alternatives -- Public Meetings

	Alternative #	Brief Description of Alternative
Most Favored for Further Study	9	Follow Carnahan Drainage down to 8 th Ave.
	6	Install signal at Pittsburg and Rockwood Blvd. Some stop signs would be removed. (*Later amended to include another traffic light at Pittsburg and 29 th .)
	5	37 th is one lane in each direction, with a center turn lane from Glenrose to High Drive. (*Later amended to run from Glenrose to Grand Blvd.)
	10	Hatch Rd. stays one lane each direction (shoulder on uphill side). New road from Hatch to Palouse Hwy.; connectors to both Regal and Freya.
	2	Havana improved between Glenrose and 57 th .
	8	Southeast Blvd., two lanes in each direction from Sprague to the intersection of Regal and 34 th .
	4	Diagonal crossover constructed at Ferris H.S. Two-lanes each direction from the intersection of Ray and 37 th to Freya and just south of 37 th .
	7	44 th Ave. would be extended from Regal to Freya.
Least Favored for Further Study	1	No Action.
	3	Extend 17 th Ave. eastward to Park Ave.

- *Which Alternatives did the Technical/Professional staff members most favor for further study?*

At the March 3, 2004 meeting with technical/professional staff partners, the attendees were asked to rank the 10 previously developed Alternatives employing the same method used at the citizen meetings. Not surprisingly, the technical staffs, weighing such elements as topography, geology, wetlands protection, flood plain locations, and sources and availability of funding, ranked the Alternatives quite differently than citizens did at the public meetings (see Table 3, below). For a comparison of the rankings, see Table 4.

Table 3, Ranking of Alternatives -- Technical Staff Partners

	Alternative #	Brief Description of Alternative
Most Favored for Further Study	4	Diagonal crossover constructed at Ferris H.S. Two-lanes each direction from the intersection of Ray and 37 th to Freya and just south of 37 th .
	5,7	Alt. 5: 37 th is one lane in each direction, with a center turn lane from Glenrose to High Drive. (*Later amended to run from Glenrose to Grand Blvd.)
		Alt. 7: 44 th Ave. would be extended from Regal to Freya.
	10	Hatch Rd. stays one lane each direction (shoulder on uphill side). New road from Hatch to Palouse Hwy.; connectors to both Regal and Freya.
	8	Southeast Blvd., two lanes in each direction from Sprague to the intersection of Regal and 34 th .
	3	Extend 17 th Ave. eastward to Park Ave.
Least Favored for Further Study	1,2,6,9	Alt. 1: No Action.
		Alt. 2: Havana improved between Glenrose and 57 th .
		Alt. 6: Install signal at Pittsburg and Rockwood Blvd. Some stop signs would be removed. (*Later amended to include another traffic light at Pittsburg and 29 th .)
		Alt. 9: Follow Carnahan Drainage down to 8 th Ave.

Table 4, Comparison of Rankings -- Public Meetings and Technical/Professionals				
	Public Ranking	Alternative #	Professional/Technical Ranking	Alternative #
Most Favored for Further Study		9		4
		6		5,7 (tie)
		5		5,7 (tie)
		10		10
		2		8
		8		3
		4		1,2,6,9 (tie)
Least Favored for Further Study		7		1,2,6,9 (tie)
		1		1,2,6,9 (tie)
	3	1,2,6,9 (tie)		

Natural and Built Environments on the South Hill: Implementation Challenges for some Alternatives

Transportation planners and road engineers face numerous and varied challenges in attempting to implement Alternatives on the South Hill. There are two basic types of challenges to transportation improvement projects: The natural environment and what is called the “built environment” -- existing human-made structures, roads, and facilities.

South Hill Natural Environment Challenges can be further broken down into several categories:

Topographic: Much of the study area is relatively flat, but many areas have steep inclines, and in some places, massive basalt bluffs that would likely require built structures (such as bridges) to negotiate. These challenges are especially true for improvements to Carnahan (Alternative 9), and the construction of a new connecting road between Hatch Rd. and the Palouse Highway, with extensions connecting Regal and Freya (Alternative 10).

Geological: Geologically, the study area is predominantly Miocene basalts (approximately 14.5-16.5 million years old) and unconsolidated mass-wasting deposits (landslides) related to repeated floods by Glacial Lake Missoula about 13,000 to 15,000 years ago. No active faults are known except the Latah Fault, which borders the western boundary of the study area. The major geological challenges come from the need to blast the basalts or build structures to negotiate them, and the need to ensure stability when building on landslide deposits.

Hydrological (surface water) and hydrogeological (ground water): The main hydrologic feature is Latah Creek, which borders the study area to the west, and poses no apparent challenges to implementing the Alternatives. Other hydrological challenges to implementation are present in the form of small and scattered wetlands and ponds, some unclassified streams, and numerous Washington State Department of Natural Resources (DNR) Type 4 and Type 5 streams, which require 50' and 25' buffers respectively.

Ground water challenges for the study area involve the protection of existing aquifers. Any transportation planning within the study area must consider how possible improvements would affect aquifer recharge areas. According to the Spokane County Critical Aquifer Recharge Area designations, all of the study area north of 57th is rated as having "High Susceptibility" for contamination to ground water. Areas roughly southeast of Glenrose and 57th show "Low Susceptibility" to ground water contamination, while an area approximately south of 65th and just to the east of Hatch Road shows "Moderate Susceptibility" to contamination.

Flood plains: One of the biggest challenges to building Alternative 9 (New road that follows the Carnahan drainage) is the presence of Federal Emergency Management Agency (FEMA)-designated floodplains within the area. The 100-year flood plain ranges from the south (west of Glenrose) to just west of Carnahan to near Havana and 7th, where it meets up with an extensive 500-year flood plain. The 100-year flood plain is at one of its widest points west of Carnahan Road, between 10th and 14th.

Wetlands: Relatively small wetlands areas dot the study area, especially to the west of Glenrose and Carnahan roads. A small, possibly intermittent wetland area northeast of 44th and Regal (near Alternative 7) may harbor migratory waterfowl, and a small, possible wetland area along Havana (north of 32nd), may require further study if Alternative 2 were to be implemented. Some wetland streams have also been noted within the study area, but would require further study if Alternatives were to be implemented near them.

Fish and Wildlife Critical Areas: Some Elk habitat and White-tailed deer range and habitat exist within the boundaries of the study area. Most Elk habitat and White-tailed deer range is south of 37th, between SR 195 and the eastern boundary of the study area at Pines Rd. White-tailed deer habitat and at least two species of butterflies designated by the Washington State Department of Fish and Wildlife as "monitored species" exist east of Park & 8th, near the northeastern tip of the study area,

South Hill Built Environment Challenges can be further broken down into two main categories involving Right-of-Way acquisitions and the preservation of areas such as parks and other Urban Natural Open Spaces:

Right-of-Way Acquisition/Property Values: Perhaps one of the greatest challenges the built environment of the South Hill poses to implementation of selected Alternatives is that property values are quite high in many locations, thus making acquisition of rights-of-way (for widening, construction of new roads, etc.) costly and perhaps prohibitive in some cases. This is especially true for Alternative 5 (37th, center turn lane) and Alternative 8 (Southeast Blvd., two lanes in each direction). Additionally, Alternative 10 could prove too costly to implement because of land purchases, and Alternatives 12 and 13 too costly because they represent combinations of multiple Alternatives.

Preservation of Urban Natural Open Space and Adherence to Section 4(f): Another aspect of the “built environment” that can create challenges to implementing transportation Alternatives is preserving “Urban Natural Open Space.” Three locations within the Southside Transportation Study area fall under this designation: Manito Park, Lincoln Park, and streamside areas along Latah Creek. All three areas are also protected under what is called “Section 4(f).” Section 4(f) is part of a national policy that says special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

In the United States Department of Transportation (USDOT) Act of 1966, a special provision was included to provide protection to these resources. Section 4(f) stipulates that the Federal Highway Administration (FHWA) will not approve any program or project which requires the use of any publicly owned public park, recreation area, or wildlife or waterfowl refuge, or any land from an historic site of national, state, or local significance unless:

1. There is no feasible and prudent alternative to the use, and
2. All possible planning to minimize harm resulting from such use is included.

Of the 13 Alternatives in this study, Alternative 8 is the most likely to come in conflict with the preservation of Urban Natural Open Spaces and adherence to Section 4(f): Lincoln Park borders Southeast Blvd., and Alternative 8 proposes the widening of Southeast Blvd. to two lanes in each direction from Sprague to Regal and 34th.

Additional information about Section 4(f) may be found at:

<http://environment.fhwa.dot.gov/guidebook/chapters/v2ch15.htm>

Part II

Analyses of Alternatives

Purpose and Need for the Development of Alternatives for the Southside Transportation Study (SSTS)

The initial purpose of this study was to research and analyze the possible effects various improvements to roadways within the study area would have on the residents of the Southside and those who use Southside roadways for travel to and from work, shopping, and other errands.

As the study progressed, the purpose was further defined by public comment, and in conjunction with a team of technical professionals representing the various partnering agencies, SRTC developed 13 Alternatives they thought best represented Southside citizens' self-identified current and future transportation needs. Each of the Alternatives required thorough computer modeling and analysis to ensure each met current and future transportation needs, with 2025 being the target year. Each Alternative was analyzed for its individual advantages and disadvantages for Southside drivers (based on Census data for population and employment densities), its challenges to construction, its effect on nearby and "feeder" travel route capacity, its relationship to current and future land use, and its effects on air quality. For a map of the Original 10 Alternatives, see Figure 4, page 44.

The need for the study was shown through vigorous citizen input in response to Spokane County's proposed Southside Arterial plan introduced in the fall of 2002. This need was further defined and clarified through passionate and meaningful citizen input in SRTC-facilitated meetings early in the process and by consistent and focused input from the partnering agencies' technical professionals.



Computer Software Used for Modeling the Alternatives

As computer technology has continued to advance, the use of computers to create "models" or forecasts has advanced as well. The SRTC and many other transportation agencies use computer models to better understand how relationships in growth and/or improvements to roads and intersections affect the way traffic flows and how the changes may affect air quality. Those reading the

results should keep in mind that these models are best used to indicate trends rather than exact circumstances.

The SRTC used three models to analyze the Southside Transportation Study Alternatives, forecasting into the year 2025 to maintain consistency with government planning requirements. These models were EMME/2, Synchro, and Cal3QHC.

TRAVEL DEMAND MODEL (EMME/2)

EMME/2 is a land-use-based travel-forecasting model, and is designed to assist transportation analysts in studying future and alternative transportation demands. This model assesses the overall growth and distribution of traffic. The results from EMME/2 help to predict the number of vehicles that can be expected in the study area (each Alternative, in this case), the travel times between locations on the “corridors” (defined streets and roads) studied, and to measure congestion at intersections and on roadways. The model incorporates land use, Census information, and growth factor data to perform its analysis. Ultimately, the model produces predictions on how traffic will flow in a particular part of the study area.

INTERSECTION MODEL (SYNCHRO)

The computer modeling software known as “Synchro” is used to evaluate traffic signals and the coordination of traffic flow. This model focuses on how to minimize delays at stoplights. The model works on the general theory that to achieve the least delay, vehicles should travel in groups between traffic signals.

AIR QUALITY MODEL (CAL3QHC)

“Cal3QHC” is the air quality model used to estimate carbon monoxide (CO) concentrations throughout the country and is required for areas (such as Spokane) that have not yet met the level of air cleanliness required by the National Ambient Air Quality Standards (NAAQS).

Results of Computer Modeling

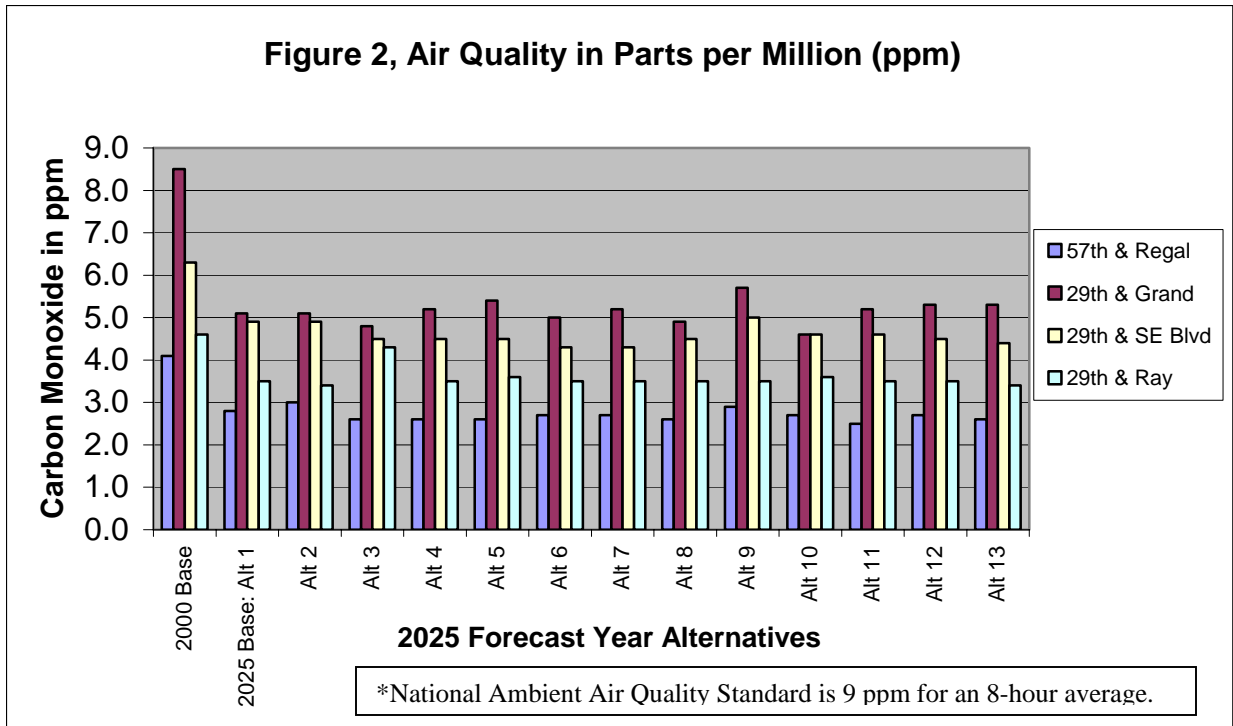
For each of the Alternatives--except Alternative 3 (withdrawn due to public comment) -- all of the following were discussed and/or analyzed:

- Current Configuration: This category simply lists present configuration of the existing roadways within the Alternative, giving interruptions, dead ends, number of lanes in each direction, signal locations, etc.
- Rationale for the Alternative: This section presents the reason(s) for developing and presenting the Alternative.
- Travel Patterns: Travel patterns are the major trips people take to travel to and from work or to run errands. The travel patterns were based on a survey given to citizen participants during the first and second series of meetings, then modeled in EMME/2 to forecast patterns for 2025. The EMME/2 model forecasts the number of vehicles that will likely travel to and from specific points within each Alternative and what their origin and destinations will likely be.
- Traffic Volumes: Traffic Volumes are forecast using a slightly different version of the EMME/2 model than the one used for Travel Patterns, and give potential changes in roadway volumes for each Alternative. The volumes are given as increases or decreases over volumes forecast in the 2025 “No-Action” Alternative model.
- Challenges: These are possible obstacles planners and engineers might face if attempting to implement the Alternative. Challenges may come in the form of difficult terrain, protected wetlands and streams, aquifer recharge protection and preservation, acquisition of rights-of-way, 4(f) issues, Environmental Justice, safety issues for pedestrians and bicyclists, utility conflicts, and air quality mitigations, among others.
- Findings: These are a combination of conclusions, a relative ranking of the benefits that might be derived from implementation, and where applicable, drawbacks to the Alternative.

Notes on Air Quality and Level of Service Analyses performed for this study:

The Clean Air Act (last amended in 1990) requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The Southside Transportation Study was of sufficient scope and nature that it merited air quality analyses to ensure compliance with the Clean Air Act. Such analyses are mandatory to make certain the proposed improvements do not impede Spokane’s progress towards the attainment of federally mandated air quality standards.

The net result of the analyses indicates that all of the 13 computer-modeled alternatives would likely conform to the Clean Air Act. Specifically, at four key intersections, carbon monoxide (CO) levels would not exceed the federally mandated National Ambient Air Quality Standards (NAAQS) limit of 9.0 parts per million (ppm) for the target year of 2025. In fact, due largely to the current and ongoing trend of cleaner-burning fuels and better automotive exhaust emissions technology, CO emissions would likely be reduced substantially from their present levels at all four intersections by the year 2025 (see Figure 2, below).



Originally, five intersections were chosen to be modeled for CO emissions: 57th and Regal, 29th and Grand Blvd., 29th and Southeast Blvd., 29th and Ray, and 37th and Regal.

After reviewing the present and forecast Level of Service (LOS) for each of the five intersections, however, SRTC determined that 37th and Regal had a LOS now and in the target year of 2025 that would not likely have an adverse effect on CO emissions. As a result, the intersection at 37th and Regal was removed from further consideration.

The remaining four intersections, however, required further study due to unacceptable LOS ratings. “Level of Service” is a value assigned to how well traffic flows through a given intersection, and is ranked by a letter (“A”-“F”) that corresponds with the average (in seconds) a vehicle is delayed at that

intersection (See Table 5, below). For example, an intersection where a vehicle has less than a 10 second delay would be rated as “A”, while an intersection delaying a vehicle more than 80 seconds would be rated as “F”. Unacceptable ratings are “D,” “E,” and “F.” Intersections with poor LOS designations (and thus longer delays) correspond directly to increased emissions as vehicles are forced to idle for longer periods of time at the given intersections. This delay is determined by analyzing a combination of factors. These factors include lane widths, traffic volumes, number of lanes, direction of travel, and the way intersections are controlled at what transportation planners call “PM Peak” -- generally the heaviest weekday evening flow.

Level of Service	Average Delay/Vehicle (secs)
A	<10
B	10 to 20
C	20-35
D	35-55
E	55-80
F	>80

Comparison of Level of Service (LOS) for Key Intersections
 (See Figure 3, page 17)

2000 Base Results (current):

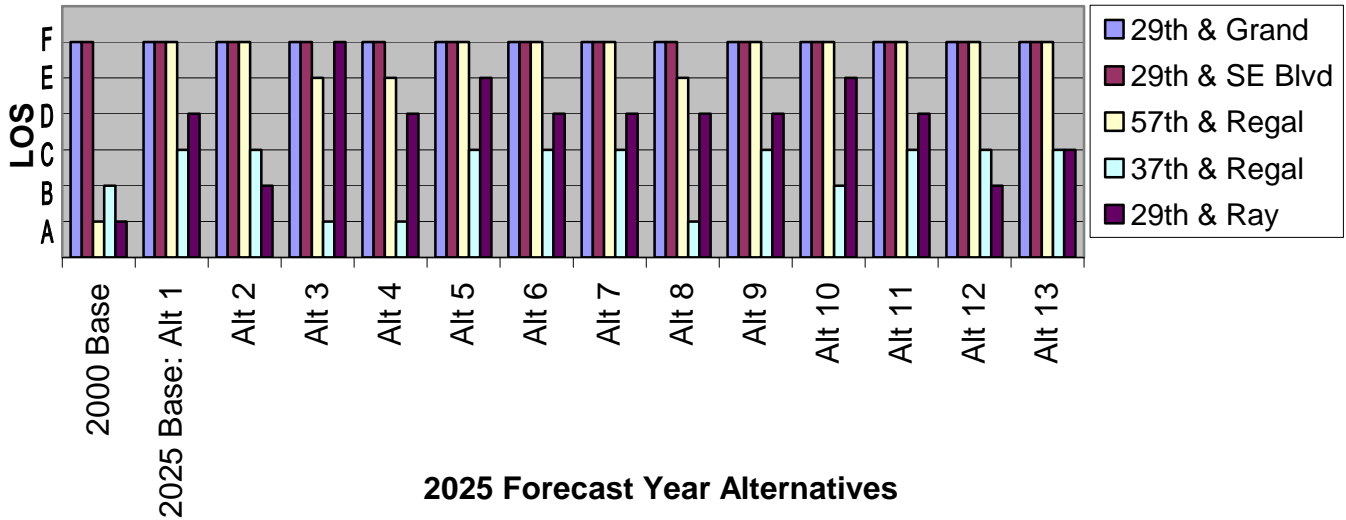
- The intersections of 29th and Grand and 29th and Southeast Blvd. both currently have unacceptable Levels of Service (LOS) ratings, while all other key intersections are currently acceptable.

2025 Forecast Results:

- Under the “No Action” Alternative (Alt. 1), all key intersections except 37th and Regal are expected to fall into the “unacceptable” category.
- Alternatives 3 -11 are all forecast to have unacceptable LOS ratings at all key intersections except 37th and Regal.
- Alternatives 2, 12, and 13 are all expected to have unacceptable LOS ratings at 29th and Grand, 29th and Southeast Blvd., and 57th and Regal.

As a result of these unacceptable ratings, all of the intersections except 37th and Regal were modeled for air quality.

Figure 3, Level of Service for Key Intersections



Land Use Forecast Assumptions:

Future Land Use: Through the analysis of census data, forecasts were made for population and employment densities within the study area. These forecasts, along with current maps showing preliminary, final, and built-out plats, suggest growth trends for commercial, retail, and residential land use for 2025. These forecasted trends assist planners in proposing Alternatives that potentially meet future transportation needs within the study area.

Commercial/Office: Commercial/Office space growth is expected to continue throughout the Southside, with the largest increases (approximately 1000+ per square mile) in employment densities by 2025 being concentrated near :

- Freya
- Regal
- High Drive
- 29th near High Dr., Rockwood, and Ray/Freya
- 37th

Residential: Growth is expected to continue throughout Southside residential areas, with heaviest growth by 2025 concentrated near the following corridors:

- Carnahan, N. of 29th (increase of approximately 2750-3750 per square mile)
- Carnahan, between 29th and 37th (increase of approximately 1000+ per square mile)
- Carnahan, S. of 37th (increase of approximately 3000-4000 per square mile)
- Regal, S. of 44th (increase of approximately 2000-4000 per square mile)
- Freya, S. of 37th (increase of approximately 2000-4000 per square mile)
- Freya, N. of 37th (increase of approximately 1000+ per square mile in some areas)
- Grand Blvd. (increase of approximately 1000+ per square mile)
- High Drive (increase of approximately 1000+ per square mile)
- 29th (increase of approximately 1000+ per square mile)
- 37th (increase of approximately 1000+ per square mile)

Building Permits: The quantity and location of building permits issued was analyzed for specific locations to help understand growth trends within the study area.

Forecast Trends for Specific Areas:

Major areas showing a marked increase in building permits include:

- Along Havana and Freya corridors, mainly south of 37th
- Northeast of 57th and Pittsburg
- Northeast of 57th and Crestline

ALTERNATIVE 1

NO-ACTION ALTERNATIVE

(Also referred to as the “No-Build Alternative” and the “Base”)

This is the current-year configuration with Transportation Improvement Plan (TIP) projects included.

Current Conditions: Alternative 1 is the “No Action” Alternative. Under this Alternative, no physical changes would be made to the current arterial system in the study area except those already planned and/or programmed. Operational changes such as traffic light optimization and synchronization for better traffic flow would continue to occur as traffic volumes and travel patterns change with growth and development.

Rationale for the Alternative: The “No-Action” (or “No-Build”) Alternative is a standard construct for transportation studies. It provides a “baseline” that allows for comparison with the other Alternatives, and forecasts what changes in traffic volumes and travel patterns would likely occur if no funding became available or if citizens and agencies decided not to pursue any improvements through the year 2025.

Travel Patterns: Under this Alternative, travel patterns are expected to remain much the same as at present, with continued “PM Peak” commuting to and from regional employment centers and trips for errands continuing to originate at residential areas.

Traffic Volumes: As expected, the overall number of vehicles using Southside roadways would increase. Please note that the volumes given below show the projected increases over year 2000 figures and are indicated for both directions

of travel at “PM Peak.” When these volumes were compared with the 2000 Base traffic counts, the following increases to volumes were noted in the model:

- Grand (between 29th and 14th): approximately 4120 more vehicles
- 29th below Grand and Bernard: 1550 more vehicles
- 29th below Regal and Pittsburg: 1270 more vehicles
- 37th below Grand and Bernard: 580 more vehicles
- 37th below Regal and Pittsburg: 840 more vehicles
- Southeast Blvd. below 29th and Rockwood Blvd.: 1600 more vehicles
- Ray below 29th: 2040 more vehicles
- Freya below 29th: 1950 more vehicles
- Carnahan between 29th and 17th: 2250 more vehicles
- Regal below Old Palouse Hwy. and 57th: 1050 more vehicles
- High Dr. below Bernard and 29th: 1070 more vehicles

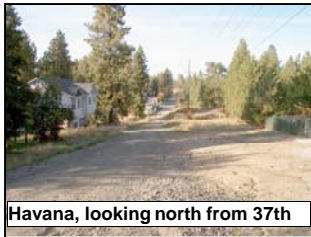
Challenges: Continued growth at or near the southern edges of the urban area would place additional burdens on the study area’s roadways. These additional burdens are likely to result in a deterioration of the levels of service -- results that may prove unacceptable to the public.

Findings: Although implementing this Alternative would result in significantly less money spent than on other Alternatives, the increased levels of congestion and resulting cost in lost time for commuters would likely be prohibitive. Some Levels of Service would likely deteriorate to the point that mitigation would be necessary. Because of the trend for more stringent emissions standards, however, Air Quality would appear to be adequate under the model. An additional drawback to implementing this Alternative is that it would overlook perceived problems with transit systems, pedestrian and bicyclist mobility, and traffic safety issues noted by citizens in numerous public meetings.

ALTERNATIVE 2

HAVANA IMPROVED BETWEEN GLENROSE AND 57TH

Current Conditions: Havana is interrupted at 17th, 32nd, and north of 37th by topography, numerous utility poles, and the presence of at least one possible wetland area.



Rationale for the Alternative: If the “disconnected” sections of Havana were joined and improved sufficiently, this Alternative would provide another much-needed direct route off the South Hill, and might possibly provide better internal (local) circulation through increased connectivity.

Travel Patterns: As expected under the forecast model for 2025, it appears traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill.

Traffic Volumes: According to the travel demand model (EMME/2), this Alternative would likely reduce the number of vehicles on the surrounding North/South roadways. When these volumes were compared with the 2025 Base traffic counts (the volume forecasted for 2025 if no improvements were made), the following changes to volumes were noted in the model:

- Traffic on Carnahan between 17th and 29th would be reduced by about 675 vehicles.
- Traffic on Freya between 29th and 37th would be reduced by about 250 vehicles.
- Traffic on 17th Ave. would increase by about 420 vehicles.

Challenges: Wetlands might be a challenge both from protection and construction standpoints. Heavy rock in some areas might require blasting and/or heavy excavation. Utility conflicts exist; in at least one area, most or all utilities would likely require relocation.

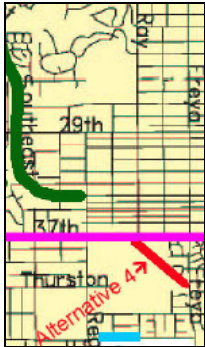
Findings: Extending and improving Havana would provide connectivity to the overall transportation system. Implementing this Alternative would moderate (but not eliminate) the need for improvements on Glenrose/Carnahan south of 17th Ave. The main possible drawback to this Alternative is that vehicles would still travel eastward and use the Carnahan/Glenrose corridors. If Havana cannot be extended due to terrain or other challenges, it will be necessary to ensure East-West routes can support the additional traffic, and traffic issues on Glenrose/Carnahan will persist north of 17th to Interstate 90.

ALTERNATIVE 3

REMOVED FROM CONSIDERATION DUE TO PUBLIC INPUT
(Originally proposed as “Extend 17th Ave. eastward to Park Ave. “)

ALTERNATIVE 4

TWO-LANES EACH DIRECTION (CROSSOVER) AT FERRIS HIGH SCHOOL FROM THE INTERSECTION OF RAY AND 37TH TO FREYA AND SOUTH OF 37TH



Current Conditions: The right-of-way to develop this corridor is currently owned by the City of Spokane.

Rationale for the Alternative: This Alternative was developed to route some traffic off Regal. Currently, the crossover is a planned project (one-lane in each direction) included in the Regional Metropolitan Transportation Plan (MTP); the City of Spokane owns the right-of-way. There is ongoing dialogue between Ferris High School and the City of Spokane about constructing this corridor.

Travel Patterns: As appears normal for the Southside, under the forecast model for 2025, traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill.

Traffic Volumes: As expected, this Alternative would likely re-route some traffic volume from Regal and would encourage more volume on Freya and Ray. When these volumes were compared with the 2025 Base traffic counts (the volume forecasted for 2025 if no improvements were made), the following changes to volumes were noted in the model:

- Volume on Freya south of 37th increases by about 95 vehicles.
- Volume on Regal decreases by about 45 vehicles.
- Volume on Ray increases by about 150 vehicles.

Challenges: Potential 4(f) issues related to the development of a new roadway adjacent to Ferris High School and associated public use fields.

Findings: As a stand-alone project, this Alternative appears to have some marginal benefit at the planning level. This improvement relieves Regal Street and 29th of unnecessary turning movements at congested intersections, but the small shift in traffic to the crossover is not likely to create a change in capacity that would be especially noted by the public. Future modifications on the transportation system to the south (directing traffic to the crossover), as well as continued development pressure on the Old Palouse Highway, may provide a more compelling case to develop the crossover in the future. With commercial and retail centers developing on Regal Street, pass-by motorists and transit riders will likely continue to use Regal Street as the route of choice, especially during the “PM Peak” travel time.

ALTERNATIVE 5

37TH IS ONE-LANE EACH DIRECTION WITH A CENTER TURN LANE FROM GLENROSE TO GRAND BLVD.

(ORIGINALLY PROPOSED AS “ 37TH IS ONE-LANE EACH DIRECTION WITH A CENTER TURN LANE FROM GLENROSE TO HIGH DRIVE.” AMENDED DUE TO PUBLIC COMMENT.)



Current Conditions: Currently, many portions of 37th Avenue are in poor-to-fair condition. Because of its good East-West connectivity and direct route to Ferris High School, 37th Avenue is a common route for those who travel the South Hill often. There is no center turn lane, limited right-of-way, and some houses are in close proximity to narrow intersections. Drivers trying to turn left cause cars to accumulate at several intersections. There is limited usage of 37th west of Grand; usage increases to the east.

Rationale for the Alternative: This Alternative would improve an already-recognized East-West route. In recognition of the residential nature of the corridor, pedestrian, bicycle, and transit stop amenities would need to be included. Traffic calming designs would be necessary to discourage higher speeds in a residential area.

Travel Patterns: Under the forecast model for 2025, traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill.

Traffic Volumes: Compared to the 2025 base counts, this Alternative would reduce some traffic volume on High Drive and Grand (between 29th and 37th), but would show slight increases on 37th, as seen below:

- High Drive vehicle volume decreases by about 22.
- Volume on Grand Blvd. between 29th and 37th decreases by about 90.
- Volume on 37th between Grand and Perry increases by about 6 vehicles.
- Volume on 37th between Bernard and Grand increases by about 17 vehicles.

Challenges: Implementation of this Alternative would likely require the purchase of rights-of-way, the narrowing of yards, possible payment of relocation costs, and the loss or minimization of already-limited on-street parking. Safety issues would need to be addressed for pedestrians and bicyclists, especially at school crossings.

Findings: From the planning perspective, analysis of this Alternative indicates that 37th Avenue really has two components: the area west of Regal Street and the area East of Regal Street.

West of Regal: Improvements west of Regal appear warranted, as it is already a designated City arterial and the established route of choice for many South Hill residents. Addressing improvements that could provide safer and more efficient travel across 37th Avenue is even more warranted, as 37th Avenue's current condition indicates it will require future reconstruction, regardless of whether or not this Alternative is implemented.

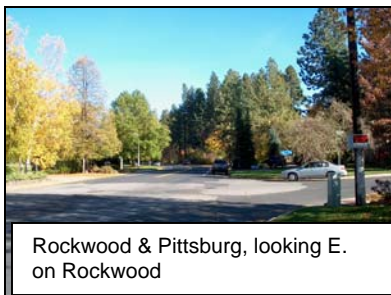
East of Regal: 37th Avenue east of Regal Street has seen increased pressure as a result of continued growth and development to the east and south. It appears several hundred vehicles would make use of the added capacity to travel 37th East-West across the South Hill. The North-South route selection, however changes little with the implementation of this Alternative. The justification for this Alternative seems to increase the further east one goes on 37th.

ALTERNATIVE 6

SIGNAL AT PITTSBURG & ROCKWOOD BLVD. AND 29TH & PITTSBURG. SOME STOP SIGNS REMOVED ON ROCKWOOD BLVD.

(ORIGINALLY PROPOSED AS “SIGNAL AT PITTSBURG & ROCKWOOD BLVD. SOME STOP SIGNS REMOVED ON ROCKWOOD BLVD.” AMENDED DUE TO PUBLIC COMMENT.)

Current Conditions: Presently, there is a stop sign on Pittsburg, but not on Rockwood Blvd. at this intersection. There is a stop sign and barrier at 29th & Pittsburg.



Rationale for the Alternative: By installing traffic signals (traffic calming) at both ends of Pittsburg (29th and Rockwood), Pittsburg would likely fill a more active role as a minor arterial. In response to a “Median Removal Survey” conducted by the public (namely students at the Cornerstone Christian Academy), the barrier on 29th would be removed and a signal installed. Removal of some stop signs on Rockwood Blvd. would allow for a more efficient connection to Southeast Blvd.

Travel Patterns: As in previous Alternatives, under the forecast model for 2025, it appears traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill.

Traffic Volumes: Compared to the 2025 base counts, this Alternative would reduce some traffic volume on 29th between Grand and Perry. As expected, increased volume would be seen on Rockwood and Southeast Boulevards. The model indicates the following changes in volumes:

- Vehicle volume on 29th between Grand and Perry would decrease by about 150.
- Southeast Blvd. vehicle volume would increase by about 380.
- Rockwood Blvd. vehicle volume would increase by about 370.

Challenges: With the proposed installation of traffic signals and the increased volume of vehicles, some signal timing optimization may become necessary. Additional traffic may create a need for safety/calming projects. This is especially true for Rockwood Blvd., which has blind corners, sharp curves, and narrow lanes and shoulders.

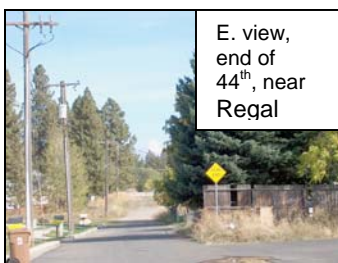
Findings: The main goal of the study is to provide opportunities for better access on and off the South Hill through better use of the existing system and adding new routes where necessary. Implementing this Alternative appears to make both Rockwood and Southeast Blvd. more attractive routes for travel, and would provide a high-benefit solution at a low cost. Under this Alternative, approximately 750 more vehicles would use this corridor for South Hill ingress/egress. Both streets are on the Federal Functional Classification System. Rockwood is classified as a Collector, while Southeast Blvd is classified as a Minor Arterial. As a Minor Arterial, Southeast Blvd. was designated to provide a route from 29th Avenue to the lower South Hill and downtown.

Should this alternative move forward, design efforts should be employed to use context-sensitive design standards to minimize impacts to residential areas, and to employ traffic calming measures to ensure Pittsburg and Rockwood Blvd. retain their character as predominantly residential streets.

ALTERNATIVE 7

44TH AVENUE EXTENSION FROM REGAL TO FREYA

Current Conditions: 44th Ave. ends just east of Regal, then starts again near Apollo, and ends again shortly thereafter.



Rationale for the Alternative: Connecting Regal and Freya at 44th would reduce or eliminate circuitous travel to commercial/retail areas from the east.

Travel Patterns: Under the model for this Alternative, PM Peak travel patterns remain consistent with that seen in previous Alternatives. Traffic flows largely from employment centers in downtown Spokane, along the I-90 corridor, and from North Spokane. Destinations appear to be residential areas and retail/commercial centers within a few blocks of the improvement.

Traffic Volumes: Compared to the 2025 Base traffic counts forecast, traffic volumes on:

- 44th Ave east would increase by about 60 vehicles.
- Freya would decrease by about 80 vehicles.

Challenges: Implementation of this alternative would likely be complicated by the hilly terrain east of Apollo, and some possible surface water/intermittent wetland/migratory waterfowl issues northeast of 44th and Regal. Re-alignment eastward and north toward 42nd might minimize development challenges.

Findings: This Alternative appears to provide efficient access to commercial and retail areas on Freya and 57th Avenue for those Southside residents living east of Regal and south of 32nd Avenue. According to the model, about 100 vehicles would actually change from using Freya and Ray to using other North-South thoroughfares such as Bernard, Grand, and Cedar/Maple/Ash to leave the South Hill. Overall, the traffic patterns change only slightly with the modeled implementation of this Alternative. The connection of Regal and Freya with 44th does not appear to change North-South movement and creates only a slight increase in traffic near the project area.

ALTERNATIVE 8

SOUTHEAST BLVD TWO-LANES EACH DIRECTION FROM SPRAGUE TO REGAL AND 34TH

Current Conditions: Southeast Blvd. is currently one-lane each direction for most of its length and has marked bicycle lanes. Southeast Blvd. becomes two lanes in each direction for a short distance just south of 3rd Ave.



Rationale for the Alternative: Implementing this Alternative would increase capacity, provide better connectivity, and provide a more efficient North-South route from the South Hill to the downtown area. During initial reconstruction of Southeast Blvd., the City of Spokane designed the road to be a four-lane principal arterial. Due to public concern, the City of Spokane passed a resolution indicating that when traffic volumes reached a specific threshold, the arterial would be re-striped to four lanes in order to accommodate future volumes. That threshold was reached several years ago.

Travel Patterns: As expected under the forecast model for 2025, it appears traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill.

Traffic Volumes: Compared to the 2025 base counts, this Alternative would significantly reduce traffic volume on Thor/Ray and slightly reduce volume on Grand Blvd. As expected, an increased volume would be seen on Southeast Boulevard. The model indicates the following changes in volumes:

- Grand Blvd. volume decreases by about 70 vehicles.
- Thor/Ray volume decreases by about 700 vehicles.
- Southeast Blvd. volume increases by about 1100 vehicles.

Challenges: Since the reconstruction of Southeast Blvd, the arterial has become the route of choice for bicyclists. Since the original arterial design did not anticipate bike lanes, continued accommodations for bicyclists and pedestrians in a four-lane environment would be challenging. Right-of-way acquisition costs to accommodate a full design section would likely be high. The proximity of Lincoln Park to Southeast Blvd. may present Urban Natural Open Spaces/4(f) issues.

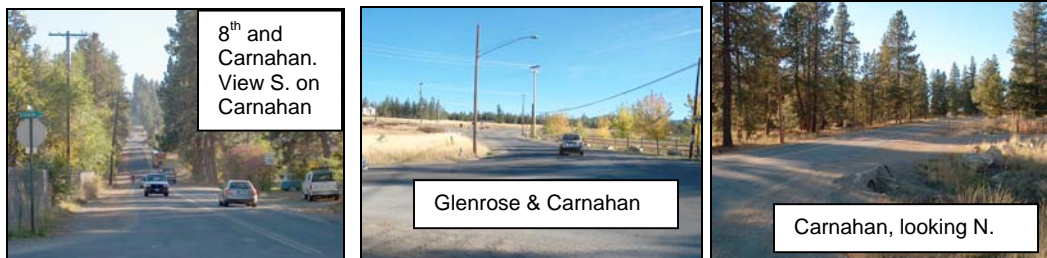
Findings: Analysis of data from the model shows adding a second lane in each direction on Southeast Blvd. would likely result in a significant benefit to those commuting to and from employment centers or traveling to and from retail/commercial areas in the downtown area. The benefits derived from this alternative would appear to be cost effective. Specific benefits would likely include:

- Serving the forecast traffic needs of continued, planned development located in areas around the south part of the South Hill and further into the rural area.
- Reducing pressure on other North-South routes such as Ray/Freya, Grand, and “feeder” routes such as Rockwood Blvd.

ALTERNATIVE 9

FOLLOW CARNAHAN DRAINAGE DOWN TO 8TH AVENUE

Current Conditions: Carnahan Road is the current roadway, with one-lane in each direction.



Rationale for the Alternative: Implementing this Alternative would give travelers a more direct route to the City of Spokane Valley.

Travel Patterns: As seen in the analysis of previous Alternatives, under the forecast model for 2025, it appears traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill.

Traffic Volumes: Compared to the 2025 Base traffic counts forecast, traffic volumes on:

- Carnahan would decrease by about 140 vehicles.
- Freya would decrease by about 65 vehicles.
- Thor/Ray would increase by about 330 vehicles.
- Glenrose would decrease by about 110 vehicles.

Challenges: Challenges to implementing this alternative are substantial. New roadway construction would require cutting through a newly established neighborhood. The drainage lies near to or within the Federal Emergency Management Agency (FEMA)-designated floodplain. No drainage currently exists at 14th. Some challenges with Air Quality and Level of Service might exist.

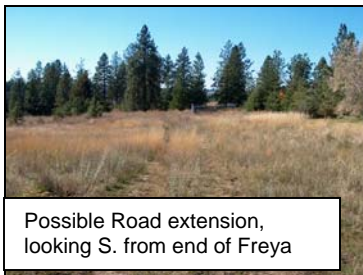
The Carnahan drainage area may not be wide enough to accommodate both a road and possible flooding.

Findings: When analyzing this Alternative from the planning perspective, the only readily apparent benefit this Alternative would have is the reduction in grade from that which currently exists on Carnahan Road. Overall traffic patterns are largely consistent with those seen if no improvement were made, and traffic shifts appear to be equal to less than one-half lane of capacity. Connectivity to existing streets on the east side of Carnahan, the disruption to newly established homes in the drainage area, and the floodplain limitation gives this Alternative questionable value.

ALTERNATIVE 10

HATCH STAYS ONE-LANE EACH DIRECTION WITH A SHOULDER ON UPHILL SIDE. THIS ALTERNATIVE WOULD ALSO ADD A NEW ROAD FROM HATCH ROAD TO THE PALOUSE HIGHWAY WITH CONNECTING ROADS TO REGAL AND FREYA

Current Conditions: Hatch Road is only one-lane in each direction with very little to no shoulder. Steep terrain on both sides provides very limited room for potential improvement. No convenient direct route exists to link Hatch Road and the Palouse Highway. The construction of Qualchan Golf Course, shopping opportunities at Cheney-Spokane Road, and significant residential development west of State Route 195 makes Hatch Road the only practical choice between the two areas.



Rationale for the Alternative: Implementation of this Alternative would provide an opportunity for wider shoulders for bicyclists and pedestrian use on the uphill side of the roadway. Vehicles using the new alignment would be able to travel more directly to and from South Hill commercial/retail and residential areas via Regal and Freya and to and from the Palouse Highway.

Travel to SR 195 would be significantly improved for travelers from the southern portions of the South Hill, especially for those travelers desiring to go toward Pullman, the commercial retail centers currently north on SR 195, and the Qualchan Golf Course. This Alternative also provides an alternate route to Spokane's central business district, and by so doing, has the potential to reduce commuter travel through neighborhoods to the north by providing better travel times using SR 195 and its planned frontage roads.

Travel Patterns: As in previous Alternatives, under the forecast model for 2025, it appears traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill. The significant difference created by this Alternative is the greater access it provides to the central business district using SR 195 rather than traversing South Hill neighborhood arterials.

Traffic Volumes: Compared to the 2025 base counts, this Alternative would slightly reduce traffic volume on High Drive, but would increase volumes on Freya and the Palouse Highway. A very significant increase in volumes would be seen on State Route 195 and Regal. The model indicates the following changes in volumes:

- High Drive decreases by about 70 vehicles.
- Freya increases by about 520 vehicles.
- Palouse Highway increases by about 140.
- State Route 195 increases by about 1670.
- Regal increases by about 1055.

Of special note is that over 1800 vehicles (approximately equal to the capacity of one freeway lane) would shift their travel patterns if this Alternative were implemented, using SR 195/Hatch and the Regal or Freya extensions as a bypass route to reach the downtown area.

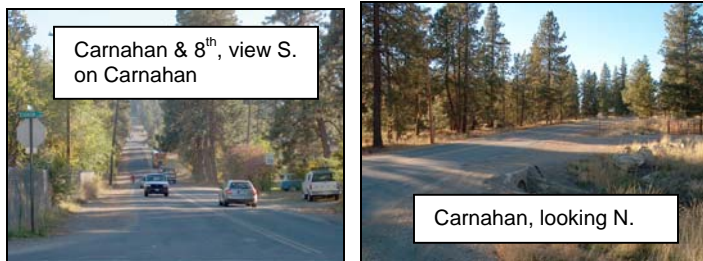
Challenges: Early land acquisition, steep slopes, and potentially, some approved large lot developments, may present some challenges to finding a new alignment. Existing development on steep hills located on both sides of Hatch Road limit the extent to which Hatch Road can be widened to provide safer bicycle and pedestrian amenities.

Findings: From a long-range transportation planning perspective, this Alternative meets many of the primary goals of the Study: To find additional access to and from the South Hill, to provide safer pedestrian and bicycle use, and to use under-utilized roadways more effectively to manage the growth traffic resulting from existing and future development.

ALTERNATIVE 11

CARNAHAN IS ONE LANE EACH DIRECTION WITH A CENTER TURN LANE

Current Conditions: Carnahan is currently one lane in each direction.



Rationale for the Alternative: Implementation of this Alternative would provide increased safety and traffic flow by giving vehicles a lane to move into when making left-hand turns.

Travel Patterns: Under the forecast model for 2025, it appears traffic at the “PM Peak” travel time will largely be produced from commuters returning home to the Moran Prairie/Glenrose area (either directly or after running errands). Their commute appears to originate at regional employment centers in the downtown area and along the I-90 corridor. Additional trips appear to be taken from residential areas for travel to retail locations such as the Lincoln Heights area and to run other errands on the South Hill.

Traffic Patterns: Compared to the 2025 Base traffic counts forecast, traffic volumes on:

- Thor/Ray would decrease by about 350 vehicles.
- Glenrose would decrease by about 260 vehicles.
- Freya would increase by about 315 vehicles.
- Carnahan would increase by about 40 vehicles.

Challenges: Because of an increase in the demand to travel from the Carnahan area to the Lincoln Heights shopping area via 29th, additional design efforts would need to address the increase in right turns onto 29th from Carnahan.

During the construction of either a center left turn lane or a climbing lane on Carnahan, maintaining local access and locating areas to stage construction equipment and supplies could prove challenging.

Findings: Given the fairly limited scope of improvements, this Alternative offers significant benefits and is justified at the planning level for further study and possible implementation. In the 2025 forecast model for this Alternative, over 1000 more vehicles selected this improved route than selected the original 2025 route. This Alternative has the added advantages of serving Glenrose-area growth (as outlined in the Comprehensive Plan) and of protecting other major roadways (such as Ray and Freya) from large volume increases seen in other modeling within this study.

This Alternative avoids potential conflicts with wetlands, floodplains, wildlife corridors and habitat, while at the same time providing improved mobility for pedestrians and bicyclists.

Further design work and possible implementation of this Alternative would need to recognize that it does not serve to mitigate Carnahan's steep grade; Carnahan would continue to have essentially the same steep grade that it does today. Sanding and de-icing will require priority route treatment, and vehicles heading south on Carnahan will continue to experience winter-time challenges climbing the hill.

ALTERNATIVE 12

COMBINATION OF ALTERNATIVES 4, 5, 6 AND 7

Current Conditions:

Alternative 4: (Crossover near Ferris H.S.): The City of Spokane owns the right-of-way.

Alternative 5: (37th from Glenrose to Grand): Currently there is no center turn lane. Cars accumulate at the intersections when trying to turn left. Limited usage west of Grand; usage increases to the east.

Alternative 6: (Addition of traffic lights on Pittsburg) Presently, there is a stop sign on Pittsburg, but not on Rockwood Blvd. at this intersection. There is a stop sign and barrier at 29th & Pittsburg.

Alternative 7: (44th Ave. extension) 44th Ave. ends just east of Regal, then starts again near Apollo, and ends again shortly thereafter.

Rationale for the Alternative: This combination of Alternatives would provide better connectivity, internal circulation, and travel efficiency within the South Hill.

Travel Patterns: As in all the previously analyzed Alternatives, under the forecast model for 2025, it appears traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill.

Traffic Volumes: Compared to the 2025 Base traffic counts forecast, traffic volumes on:

- Carnahan (between 17th and 29th) would decrease by about 135 vehicles.
- 37th (between Bernard and Grand) would decrease by about 30 vehicles.
- High Drive would decrease by about 104 vehicles.
- Freya (between 29th and 37th) would increase by about 130 vehicles.
- 17th Ave. would increase by about 15 vehicles.
- Regal would increase by about 100 vehicles.
- Ray would increase by about 62 vehicles.

- Grand (between 29th and 37th) would increase by about 280 vehicles.
- 37th (between Grand and Perry) would increase by about 100 vehicles.

Challenges:

Implementation of this Alternative would likely require the purchase of rights-of-way, the narrowing of yards, possible relocation costs, and loss or minimization of some on-street parking. Safety issues will need to be addressed for bicyclists and pedestrians, especially at school crossings. Some 4(f) issues potentially exist, some congestion mitigations may be necessary, and there could be topography and possible wetlands issues. Community support for individual Alternatives or the combination thereof, will need to be present for its implementation to be successful.

Findings: From a transportation planning perspective, this Alternative provides minor adjustments and efficiencies to the existing system, but does not indicate significant benefits that might be expected through the combination of several Alternatives. Overall, this Alternative shows only minor shifts in traffic volumes, with most shifts totaling under 150 vehicles per roadway, and no significant benefit to any thoroughfare.

ALTERNATIVE 13

COMBINATION OF ALTERNATIVES 2, 4, 5 AND 7

Current Conditions:

Alternative 2: (Havana improvements) Havana is interrupted at 17th, 32nd, and north of 37th by topography, numerous utility poles, and the presence of at least one possible wetland area.

Alternative 4: (Crossover near Ferris H.S.) The City of Spokane owns the right-of-way.

Alternative 5: (37th from Glenrose to Grand) Currently there is no center turn lane. Cars accumulate at the intersection when trying to turn left. Limited usage west of Grand; usage increases to the east.

Alternative 7: (44th Ave. extension) 44th Ave. ends just east of Regal, then starts again near Apollo, and ends again shortly thereafter. Requires circuitous movements to reach commercial/retail areas.

Rationale for the Alternative: This combination of Alternatives would provide better connectivity, internal circulation, and travel efficiency within the South Hill, and perhaps another direct and much-needed route off the South Hill.

Travel Patterns: As in all the previously analyzed Alternatives, under the forecast model for 2025, it appears traffic at the “PM Peak” travel time will largely be produced from commuters returning home from regional employment centers (either directly or after running errands) and by trips taken from residential areas to run errands on the South Hill.

Traffic Volumes: Compared to the 2025 Base traffic counts forecast, traffic volumes on:

- Freya (south of 37th) would decrease by about 220 vehicles.
- Ray would decrease by about 540 vehicles.
- High Drive would decrease by about 70 vehicles.
- 37th (between Bernard and Grand) would decrease by about 70 vehicles.
- Southeast Blvd. would decrease by about 175 vehicles.

- Regal would increase by about 10 vehicles.
- Grand (between 29th and 37th) would increase by about 125 vehicles.
- 37th (between Grand and Perry) would increase by about 100 vehicles.

Challenges: Implementation of this Alternative would likely require the purchase of rights-of-way, the narrowing of yards, possible relocation costs, and loss or minimization of some on-street parking. Safety issues will need to be addressed for bicyclists and pedestrians, especially at school crossings. Some congestion mitigations may be necessary, and there could be topography challenges, possible wetlands issues, and utilities relocations. Community support for this combination of Alternatives would be necessary for it to be successfully implemented.

Findings: From a transportation planning perspective, this Combination Alternative does provide some internal South Hill circulation improvements, especially with the addition of Havana to the arterial system. Overall, this Alternative shows some minor shifts in traffic volumes, with most shifts totaling fewer than 150 vehicles per roadway. While overall, there does not appear to be a large redistribution of traffic, the efficiency and reduced circuitous travel indicates this Alternative has merit for further study.

➤ ***What happens next?***

Next, the various “jurisdictions” involved in the study (such as Spokane County, City of Spokane, City of Spokane Valley, etc.) will take the entire study and use it as an advisory tool for addressing transportation needs for the “Southside.” Each will have the responsibility of the respective jurisdiction(s) to advance further analysis and project development. In some cases, such as Alternative 10, a cooperative project between the City of Spokane, Spokane County and WSDOT would be necessary to ensure coordinated and timely development.

➤ ***Why should I be involved in future studies?***

Probably the best reason to be involved in future studies is to ensure that you have an active voice and a stake in what happens with your community’s transportation needs. Community meetings of this type are truly examples of “Democracy in Action,” and give you, as a citizen, an opportunity to convey your wishes to your elected and appointed regional officials.

If you’ve ever said:

“I sure wish we had a bike path here,” or

“Why don’t they widen this road?” or

“How come there isn’t a sidewalk here?” or any of the dozens of other questions related to how people move within your community, then you should definitely be involved!

➤ ***Where can I get more in-depth information about this study?***

More information, including records of public comment, may be found at our website: <http://www.srtc.org>. This information, plus additional technical data from the computer models, is contained in the **Southside Transportation Study Appendix**, available for review at the Spokane Regional Transportation Council office located at 221 W. First Ave., Suite 310, Spokane, WA 99201, or by request. If you would like to call the SRTC at (509) 343-6370, questions will gladly be forwarded to the appropriate staff member or area agency.