Annual Report

Transportation Concurrency Management Program

2010 Annual Update

September 2010

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Introduction

Since 1995, the King County Department of Transportation's Transportation Concurrency Management (TCM) Program has been reviewing development proposals to ensure that an adequate road network is available to accommodate any additional traffic associated with the development proposals. These efforts satisfy the requirements of the 1990 Growth Management Act, Revised Code of Washington 36.70A.070(6)(e), and the concurrency policy contained in the King County Comprehensive Plan. The purpose of this annual report on TCM is to satisfy King County Code 14.70.270.B, which requires an annual report explaining the technical assumptions and parameters used to update the concurrency map that serves as the County's basis for determining concurrency.

Changes and Findings

Due to resource constraints, the TCM program for 2010 only collected travel time data on a selection of routes on roadway corridors that were evaluated for concurrency in 2009. A process was developed to identify roads that would be sampled in 2010. Criteria used to identify the roads for which travel time data would be collected in 2010 are as follows:

- Routes that failed the urban or rural level of service (LOS) standard in 2009.
- Routes that were at the urban or rural LOS standard in 2009.
- Routes connected to one of the above routes.

For all other routes, travel time data collected in 2009 was used in the 2010 concurrency testing. Fifty-four percent of the 2009 routes were sampled. Routes within annexation areas that would become incorporated in 2010 were not sampled, nor included in the concurrency testing.

Five travel sheds are failing the concurrency test in 2010, versus four in 2009. Three of the same travel sheds from 2009 remain out of compliance. Two travel sheds that were in compliance in 2009 are now failing, while one of the travel sheds that was out of compliance in 2009 is now passing. All of the sheds that had a status change this year were close to the compliance standard, with fluctuations in annual traffic volume contributing to the change in status. This follows trends toward flat or slightly fluctuating traffic volume growth across the region while the economic downturn of recent years continues.

Summary of Results

Concurrency Testing Results

The 2010 transportation concurrency test results are shown on the attached table titled *2010 Transportation Concurrency Test by Travel Shed.* Five of the twenty-five total travel sheds tested failed the test. The twenty travel sheds passing the concurrency test passed with more than 90 percent of the road mileage meeting concurrency LOS standards. All rural mobility areas passed the 2010 concurrency test. These areas include Rural Towns (Fall City, Vashon, and Snoqualmie Pass) with a LOS standard of E, and selected Rural Neighborhood Commercial Centers (Cumberland, Cottage Lake, Maple Valley, and Preston) with a LOS standard of D. Of the twenty-five travel sheds tested for transportation concurrency, six are all or predominantly urban, three are a mix of urban and rural, and 16 are all or predominantly rural.

Travel sheds with more than 15 percent of total mileage failing concurrency LOS standards are identified as failing travel sheds. The failing travel sheds are indicated by crosshatching on the attached map titled *2010 Transportation Concurrency Map*, which is proposed to be adopted by the King County Council. Data was collected on principal and minor arterials, and on designated state highways that function like county arterials. A summary of travel sheds failing in 2010 is shown in the table below.

Travel Sheds Failing in 2010

Travel Shed (shed #)	Location	Percentage of Travel Shed Miles Failing	Number of Failing Travel Shed Routes	Total Travel Shed Routes
Green River Valley (5)	Southwest King County	22.62%	2 (*)	8
Juanita/Kingsgate (8)	Northeast King County	16.49%	2 (*)	15
Sammamish Valley (9)	Northeast King County	32.91%	2 (*, **)	7
Woodinville (10)	Northeast King County	18.18%	4	15
Novelty Hill (11)	Northeast King County	20.18%	4	16

* City involvement

** State involvement

The five travel sheds in the table above are failing because of high traffic volumes and congestion at key intersections; this is shown on the attached map titled *Routes Causing Travel Shed Concurrency Failure 2010*. The following is a brief summary of the five failing travel sheds and the associated causes.

- In the Green River Valley travel shed, there are two routes (shown on the map as routes 1 and 2) failing the rural LOS standard of B. One is on 83rd Avenue South (southbound) approaching South 277th Street, and the second is on South 277th Street (eastbound) approaching West Valley Highway and State Route 167.
- In the Juanita/Kingsgate travel shed, congestion due to volume and roadway capacity needs causes two routes (3 and 4 on the map) along Northeast 132nd Street (westbound) to fail the urban LOS standard of E.
- In the Sammamish Valley travel shed, congestion along State Route 202 at Northeast 124th Street (southbound) and on Northeast 124th Street (eastbound) is causing two routes (5 and 6 on the map) to fail the rural LOS standard.
- In the Woodinville travel shed, congestion at the intersection of Northeast Woodinville Duvall Road and Avondale Road Northeast is causing both roadways (routes 8 and 9 on the map) to fail the rural LOS standard. In addition, Northeast 133rd Place (7 on the map) fails the same rural standard due to congestion at two intersections, Bear Creek Road and Avondale Road. A section of Novelty Hill Road (10 on the map) east of the urban planned developments also fails the rural standard due to congestion on a winding, steep grade with a slow speed limit.
- In the Novelty Hill travel shed, the section of the Novelty Hill Road route (10 on the map) identified in the bullet point above fails the rural standard for the reasons stated above. Congestion on 208th Avenue Northeast (northbound) approaching the

intersection at Novelty Hill Road, and 196th Avenue Northeast (southbound) approaching Northeast Union Hill Road, cause these roadways (11 and 12 on the map) to fail the rural LOS standard. Also, Northeast 133rd Place (7 on the map) fails the rural standard due to congestion at Bear Creek Road and at Avondale Road.

One of the route failures is on a state highway (State Route 202), and two of the key intersections (Northeast 124th Street at State Route 202 and 83rd Avenue South at South 277th Street) are located within city limits (Redmond and Auburn, respectively) or involve the cities on one or more legs of the intersection. Two routes (Northeast 132nd Street) split right-of-way between the city (Kirkland) and the county. Consequently, these situations require coordination between King County and the other jurisdictions to complete projects that could bring a failing route into compliance. The Washington State Department of Transportation and cities of Auburn, Kirkland, and Redmond have LOS standards and concurrency processes different than King County, which complicates the coordination effort.

Also noteworthy is that three of the five failing travel sheds are in predominantly rural areas. The routes that fail in rural travel sheds are failing the rural LOS standard B. Several of the rural roads with failing routes connect two urban areas. For example, State Route 202 connects the cities of Woodinville and Redmond. This roadway carries urban commuter traffic through an area designated primarily as rural. South 277th Street runs across the Green River Valley and acts as an urban connector through preserved farmlands that are islands of rural designation in the urban area. The only roadway in the five travel sheds failing the urban LOS standard E is Northeast 132nd Street in the Juanita/Kingsgate travel shed.

Travel Sheds Changing Status from 2009 to 2010

Four travel sheds failed the transportation concurrency test in 2009, while five travel sheds fail in 2010. The following table identifies the changes in travel shed status.

Travel Shed Change of Status

Travel Shed (shed #)	2009 Status	2010 Status	2009 Percentage of Travel Shed Miles Failing	2010 Percentage of Travel Shed Miles Failing
Juanita/Kingsgate (8)	Pass	Fail	8.12%	16.49%
Woodinville (10)	Pass	Fail	8.77%	18.18%
Newcastle/East Renton (12)	Fail	Pass	16.58%	2.48%

The one travel shed that failed in 2009 but passed in 2010 is Newcastle/East Renton. The Newcastle/East Renton travel shed was failing in 2009 with 16.58 percent of the road mileage not meeting standards, but is passing in 2010 with only 2.48 percent road failure. Due to the relatively low total amount of shed mileage, a small change in travel time and speed near the intersection of State Route 900 and 164th Avenue Southeast was enough to result in a change of LOS standard C in 2009 to LOS standard B (rural standard) in 2010 on those routes, and the corresponding change in travel shed status.

Two travel sheds that passed in 2009 failed in 2010. The Juanita/Kingsgate travel shed was passing in 2009 with 8.12 percent road failure, but fails with 16.49 percent of the mileage failing LOS standards in 2010. This travel shed failure was due to a second route on Northeast 132nd Street that passed the concurrency test at LOS standard E (urban standard) in 2009, but changed to LOS standard F in 2010. The Woodinville travel shed was passing in 2009 with 8.77 percent of the mileage failing, but now fails in 2010 with 18.18 percent of the travel shed mileage failing LOS standards. The Woodinville travel shed failure in 2010 was due to the route on Avondale Road approaching the intersection at Woodinville-Duvall Road changing from LOS standard B (rural standard) in 2009 to LOS standard C in 2010.

Trends in Travel Time

An analysis of the concurrency and LOS changes between 2009 and 2010 indicates they are related to transportation trends throughout the Seattle Metropolitan region. A combination of factors, from the economic downturn to high gas prices, seems to be altering commuting habits and reducing traffic volumes and travel times on the roadways. During 2008 and early 2009, the Washington State Department of Transportation studied travel time on area freeways and found travel times during commute hours were down on a majority of routes ("Economic Downturn Reduces Travel Demand in the Central Puget Sound," by the Washington State Transportation Center, April 2009, http://tinyurl.com/ntw29k). This mirrors a national trend identified by the 2009 Urban Mobility Report published by the Texas Transportation Institute ("Economic Factors Tap the Brakes on Traffic Congestion," July 2009, http://mobility.tamu.edu/ums/media_information/press_release.stm).

King County's 2008, 2009, and 2010 traffic count data generally confirms the continued effects of the economic downturn. In March and April 2010, the same months the TCM program collected travel time data, the Road Services Division's (RSD) Traffic Engineering Section collected traffic counts in eight key locations on arterials throughout King County for which travel time data was also collected. From 2008 to 2009, there was a major reduction in traffic on all measured routes. From 2009 to 2010, half of the counts increased and half decreased, with the total volume for all eight count locations remaining virtually unchanged.

Identification of Needed Transportation Improvements

A component of the TCM program is the identification of potential transportation improvements needed to bring failing travel sheds back into compliance, with an emphasis on the road corridor routes, or segments, that cause the travel sheds to fail. The failing travel sheds and their failing routes are illustrated in the attached map titled *Routes Causing Travel Shed Concurrency Failure 2010*. Also attached is a *Project List for Achieving Concurrency Compliance in Failing Travel Sheds Summary Table*, which identifies the problem locations, possible road improvements to solve the problems, preliminary estimated costs, and priorities. Several of the potential road improvements to address transportation concurrency failures within the unincorporated area cannot be improved by King County because they are on a state highway or within cities; this information will be communicated by RSD to these jurisdictions. In addition, most of the projects, whether state, city, or county, are unfunded at this time. More information on how needed improvements were identified is contained in the Technical Appendix.

Looking Ahead: 2011 Annual Update

The results of annexations will change how concurrency is being applied. Two large annexation proposals became effective in 2010: Panther Lake (Kent) and North Highline South Portion (Burien). Therefore, the road mileage within these annexation areas was not included in the concurrency testing in 2010.

An annexation vote for Juanita/Finn Hill/Kingsgate (Kirkland) passed, but the annexation will not become effective until June 1, 2011. When this annexation takes place, the majority of the Juanita/Kingsgate travel shed will become part of the City of Kirkland. The 2010 failing routes in this travel shed will become incorporated, and the remaining unincorporated portion of the Juanita/Kingsgate travel shed would pass concurrency if retested based on 2010 data. However, the remaining unincorporated portion of the travel shed will stay out of compliance until a new test is completed and the results approved for the 2011 transportation concurrency update.

The TCM program will be reviewed in 2011 to identify ways to improve the process, while also maintaining consistency to better compare data gathered from year to year. The RSD will be investigating ways to improve how travel sheds are defined and represented, which may involve review of travel shed boundaries, route lengths, prioritization of corridors for sampling, etc., with a target year of 2012 (King County Comprehensive Plan update) for any significant changes. Strengthening the program will also involve investigating methods to increase the multi-modal aspect of concurrency, implementing the Climate Change Initiative, and integrating an updated Mitigation Payment System program more directly with concurrency.

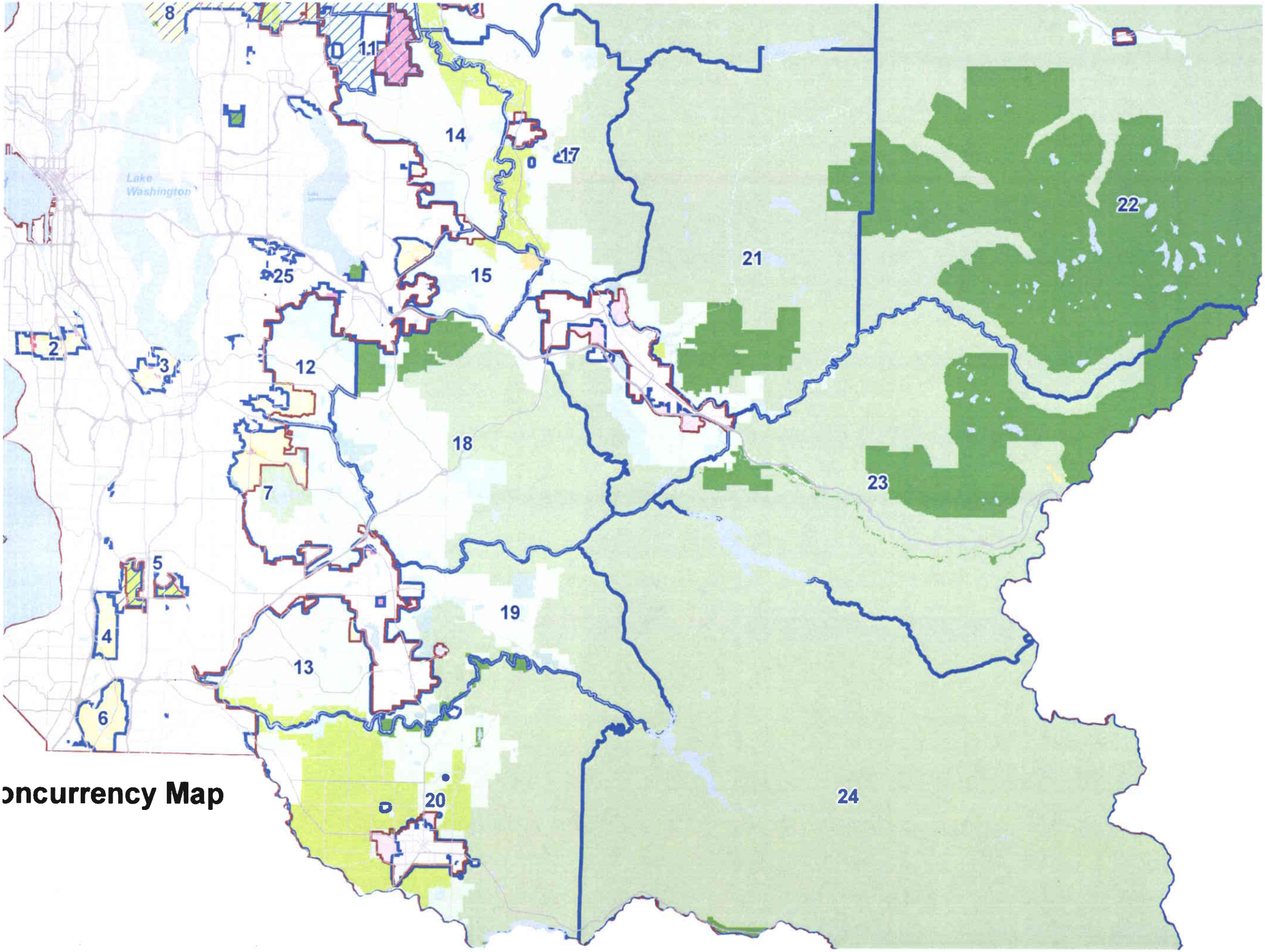
2010 Transportation Concurrency Test by Travel Shed

September 2010

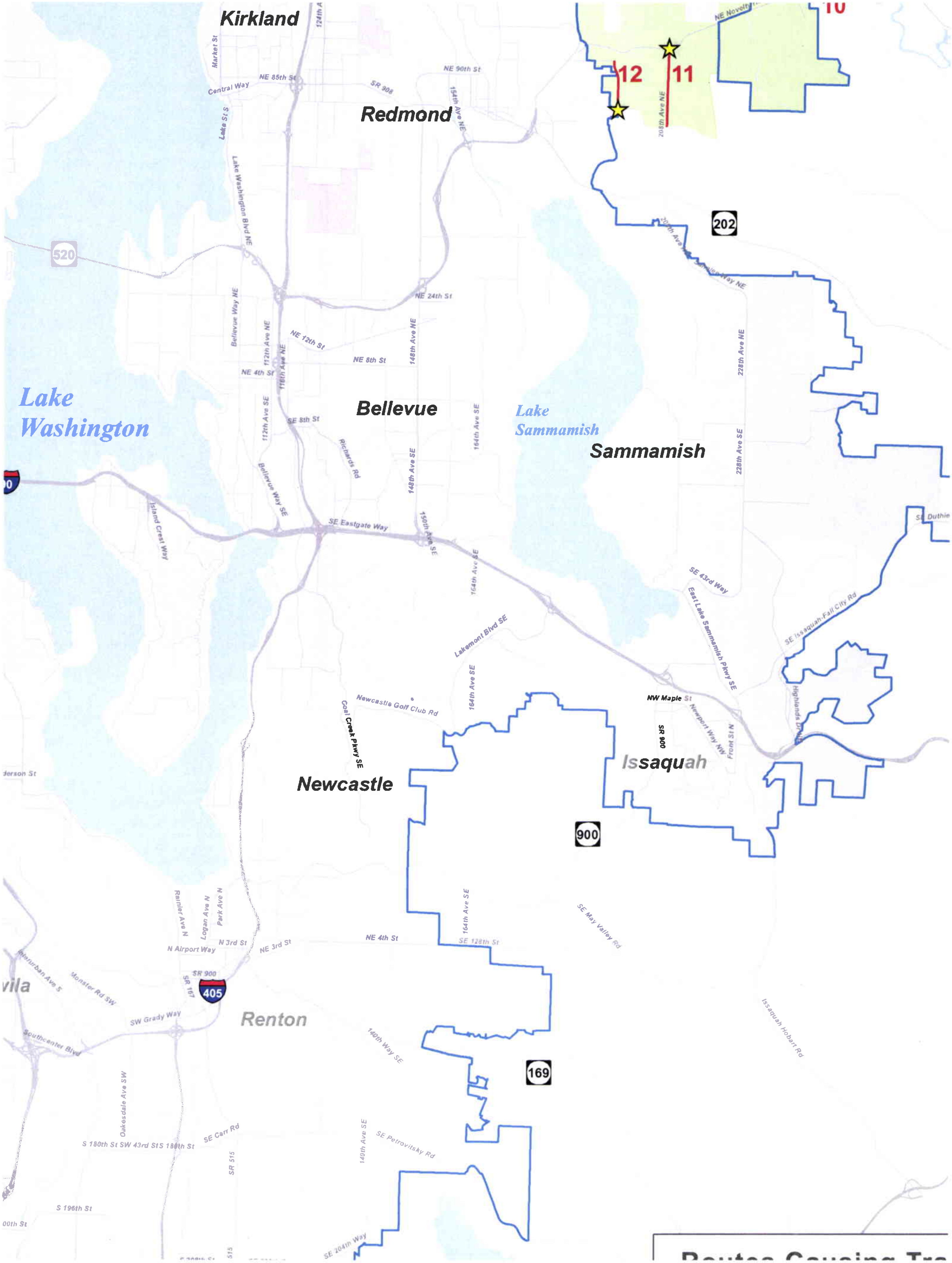
Travel Shed	Geographic Identifier	Total Travel Shed Mileage	Travel Shed Total Failed Mileage	Percent Travel Shed Failing Standard	Travel Shed Concurrency Test (85% Compliance)
1	Vashon	26.12	1.25	4.79	PASS
2	White Center	8.71	0.25	2.87	PASS
3	West Hill	5.06	0	0	PASS
4	North Federal Way	5.54	0	0	PASS
5	Green River Valley	4.42	1	22.62	FAIL
6	SE Federal Way	5.94	0	0	PASS
7	Soos Creek	30.67	0.66	2.15	PASS
8	Juanita/Kingsgate	12.31	2.03	16.49	FAIL
9	Sammamish Valley	5.53	1.82	32.91	FAIL
10	Woodinville	20.3	3.69	18.18	FAIL
11	Novelty Hill	15.41	3.11	20.18	FAIL
12	Newcastle/East Renton	14.11	0.35	2.48	PASS
13	East Auburn	24.7	0	0	PASS
14	Union Hill/202	33.44	2.55	7.63	PASS
15	Sammamish	10.43	0	0	PASS
16	Duvall	8.61	0	0	PASS
17	Snoqualmie Valley	20.14	0	0	PASS
18	Tiger Mtn/Hobart	31.1	1.53	4.92	PASS
19	Black Diamond	14.04	0	0	PASS
20	Enumclaw*	46.47	0	0	PASS
21	North Bend	3.14	0	0	PASS
22	Skykomish	0	0	0	PASS
23	Snoqualmie Pass	0	0	0	PASS
24	White River	0	0	0	PASS
25	Klahanie/Eastgate	5.04	0.34	6.75	PASS

* Includes Southeast 440th Street, an urban minor arterial from 284th Avenue Southeast to the Enumclaw city limits, where data was collected in 2010. No data collection was done on this route in 2009 due to construction activity.

Designated Rural Towns and Rural Neighborhood Commercial Centers all pass concurrency testing.



oncurrency Map


Kirkland
Redmond
Bellevue
Sammamish
Newcastle
Issaquah
Renton
Lake Washington
Lake Sammamish
12
11
10
202
520
900
169
405
NE 85th St
NE 90th St
SR 908
154th Ave NE
208th Ave NE
Market St
Central Way
Lake St S
Lake Washington Blvd NE
Bellevue Way NE
112th Ave NE
116th Ave NE
NE 24th St
NE 12th St
NE 8th St
NE 4th St
148th Ave NE
228th Ave NE
228th Ave SE
112th Ave SE
SE 8th St
Richards Rd
148th Ave SE
164th Ave SE
Bellevue Way SE
Island Crest Way
SE Eastgate Way
150th Ave SE
SE 43rd Way
East Lake Sammamish Pkwy SE
SE Issaquah-Fall City Rd
Lakemont Blvd SE
NW Maple St
SR 900
Newport Way NW
Front St N
Highlands Dr
Newcastle Golf Club Rd
Coal Creek Pkwy SE
SE Duthie
Rainier Ave N
Logan Ave N
Park Ave N
N 3rd St
N Airport Way
NE 3rd St
NE 4th St
SE 128th St
SE May Valley Rd
Issaquah Hobart Rd
SR 167
SW Grady Way
Monster Rd SW
Interurban Ave S
Southcenter Blvd
140th Way SE
Oakesdale Ave SW
S 180th St SW 43rd St S 180th St
SE Carr Rd
SR 515
140th Ave SE
SE Petrovitsky Rd
S 196th St
SE 204th Way

Project List for Achieving Concurrency Compliance in Failing Travel Sheds
Summary Table
September 2010

Route Number	Corridor	Corridor Route	2010 LOS	LOS Standard	Failing Direction	% of Shed Mileage	% of Shed Mileage Failing	Problem/Location	Solution/Project	Cost Estimates $ (million)	Ease of Implementation (1) Easiest to (3) Most Difficult
Travel Shed 5 - Green River Valley							22.62				
1	83rd Ave S (Central)	Green River Bridge to S 277th St	C	B	SB	11.30		Intersection delay Southbound movements to S 277th St; Delay caused by heavy Eastbound traffic from 83rd Ave SE / Auburn Way N to SR-167	S 277th St (Auburn Way N to Grn Riv Bridge) major widing 0.9 mi; add 1 WB & 2 EB three lanes; final config. 5 lanes, 3 EB / 2 WB lanes.	$1.51 City of Auburn Unfunded	2
2	S 272nd/277th St	Lake Fenwick Rd to SR-167 East off ramp	C	B	EB	11.32		Intersection delay Eastbound @ West Valley Highway and @ SR-167 ramp intersections; delay caused by heavy through traffic	ITS; signal modification to coordinate signals in corridor; KC CIP Project number 300108 scheduled for 2009/2010; coordination with WSDOT and Auburn	$0.72 County Funded (2010)	1
Travel Shed 8 - Juanita/Kingsgate							16.49				
3	NE 132nd St	100th Ave NE to 116th Ave NE	F	E	WB	8.12		Intersection delay at several locations and heavy traffic volume Westbound	City of Kirkland re-construction of roadway and improvements at key intersections.	$3.3 City of Kirkland Unfunded	2
4	NE 132nd St	116th Ave NE to 132nd Ave NE	F	E	WB	8.37		Intersection delay at several locations and heavy traffic volume Westbound	City of Kirkland re-construction of roadway and improvements at key intersections.	$8.3 City of Kirkland Unfunded	2
Travel Shed 9 - Sammamish Valley							32.91				
5	NE 124th St	Willows Rd to SR-202	D	B	EB	18.26		Intersection delay Eastbound @ SR-202 caused by heavy volume and competing movements	City project east leg intersection (WB thru/WB right, signal modification) will help delay on all legs; also City project to widen south leg SR-202 in planning stage	$6.3 East leg City of Redmond Funded (2010) -- UPD contribution South leg part of City of Redmond unfunded corridor plan	1
6	SR-202	NE 124th St to NE 136th St	C	B	SB	14.65		Intersection delay Southbound @ NE 124th St caused by heavy volume	Same as Project 5 above	See Project 5 above	1

Project List for Achieving Concurrency Compliance in Failing Travel Sheds
Summary Table
September 2010

Route Number	Corridor	Corridor Route	2010 LOS	LOS Standard	Failing Direction	% of Shed Mileage	% of Shed Mileage Failing	Problem/Location	Solution/Project	Cost Estimates $ (million)	Ease of Implementation (1) Easiest to (3) Most Difficult
Travel Shed 10 - Woodinville							18.18				
7	NE 133rd St	Avondale Rd to 202nd Ave NE	C	B	WB	4.43		Volume and intersection delay Westbound @ Bear Creek Rd and @ Avondale Road	Widen and rechannelize intersection at Avondale Rd; realign intersection at Bear Creek Rd to make major movement east/west and Bear Creek Rd at 90 degrees to NE 133rd; old KC CIP Project number 101088 (NE 128th/NE 132nd St)	$11.8 County Unfunded	3
8	Avondale Rd	Woodinville-Duvall Rd to NE 146th Way	C	B	NB	7.39		Intersection delay Northbound @ Woodinville Duvall Rd caused by heavy traffic	Former CIP project full intersection improvement with turn channel improvements on all legs; Woodinville-Duvall Rd ITS Phase II signal interconnect and coordination	$9.6 County Unfunded	3
9	Woodinville-Duvall Rd	182nd Ave NE to Avondale Rd	C	B	EB	4.34		Intersection delay Eastbound @ Avondale Rd caused by heavy traffic	Same as Project 8 above	See Project 8 above	3
10	Novelty Hill Rd	234th Ave NE to West Snoqualmie Valley Rd	C	B	WB	2.02		Slow traffic both Eastbound and Westbound on the steep, winding, low speed limit road	Rebuild road to meet standards and connect at NE 124th St	N/A County Unfunded	3
Travel Shed 11 - Novelty Hill							20.18				
7	NE 133rd St	Avondale Rd to 202nd Ave NE	C	B	WB	5.84		Volume and intersection delay Westbound @ Bear Creek Rd and @ Avondale Rd	Same as Project 7 in Woodinville (above)	$11.8 County Unfunded	3
10	Novelty Hill Rd	234th Ave NE to West Snoqualmie Valley Rd	C	B	WB	1.75		Slow traffic both Eastbound and Westbound on the steep, winding, low speed limit road	Same as Project 10 in Woodinville (above)	N/A County Unfunded	3
11	208th Ave NE	Union Hill Rd to Novelty Hill Rd	C	B	NB	7.79		Delay Northbound at Novelty Hill Rd from heavy volume and turn movements	Roundabout at Novelty Hill Rd intersection; could be included in ultimate Novelty Hill Rd CIP project or as separate intersection project	$10.1 County Unfunded intersection	3
12	196th Ave NE	Union Hill Rd to NE 95th St	C	B	SB	4.80		Delay Southbound due to heavy through traffic on Union Hill Rd	Roundabout at Union Hill Rd part of Novelty Hill Rd CIP project number 100992	$37.9 County Funded (2010)	1

Technical Appendix

Annual Report
Transportation Concurrency Management Program
2010 Annual Update

I. Travel Time Data Collection Methodology

The Transportation Concurrency Management (TCM) Program collects travel time data each year to update the Transportation Concurrency map. In 2009, the concurrency process became more automated when the Road Services Division (RSD) acquired eight GeoLoggers, which are Global Positioning System (GPS) devices designed for collecting detailed vehicle travel data. The GeoLogger units allow for accurate and intensive data collection using half the manpower needed for previous survey efforts. The data logger automatically records second-by-second time, geographic position, speed data, etc. The automated nature of the device also increases safety by allowing the driver of the data collection vehicle to be more attentive to road conditions. Companion software imports the data collected by the GeoLogger and processes it. The data is then displayed graphically through Geographical Information System software covering the King County road network.

Due to resource constraints, the TCM program for 2010 only collected travel time data on a selection of routes on roadway corridors that were evaluated for concurrency in 2009. A process was developed to identify roads that would be sampled in 2010. Criteria used to identify the roads for which travel time data would be collected in 2010 are as follows:

- Routes that failed the urban or rural level of service (LOS) standard in 2009.
- Routes that were at the urban or rural LOS standard in 2009.
- Routes connected to one of the above routes.

For all other routes, travel time data collected in 2009 was used in the 2010 concurrency testing. Fifty-four percent of the 2009 routes were sampled. Routes within annexation areas that would become incorporated in 2010 were not sampled, nor included in the concurrency testing.

Travel time data was collected on principal and minor arterials and certain state highways. For sampled routes, three to ten data runs per day were collected on routes in each corridor over a one- to three-day period, depending on corridor length and congestion. A single run consists of a round-trip drive through the corridor in one direction, and returning in the opposite direction to the starting point. Each corridor route was prioritized to determine how many days and runs should be completed. Prioritization was established based on several factors, including the perceived congestion level of the corridor based on data collection in 2009. For contiguous and short corridors, data was collected from multiple corridors by the same driver in a given evening. Data collection was halted or the data dismissed if an accident or emergency obstructed traffic flow in a corridor. Corridors were scheduled based on avoiding abnormal traffic conditions caused by construction, road closures, or other identified events.

Travel time data was collected by driving each route and timing how long it took to move from one end of the corridor to the other, noting intermediate points in between. According to the Federal Highway Administration (Travel Time Data Collection Handbook), the spring season is the time of year providing the most representative driving conditions, so the data collection program was run during March, April, and early May. Data was only collected on Tuesdays, Wednesdays, and Thursdays, when the most representative weekly traffic conditions occur during the peak evening commuting period (the highest estimated two-hour volume is between 4 p.m. and 6:30 p.m.). No data was gathered during school spring breaks, holiday periods, and construction and traffic events to avoid obtaining data during atypical commuting days.

II. Data Processing and Analysis

Once the data was collected, it was downloaded and processed by TravTime software used by the RSD. The software reads the GPS data and calculates information (number of runs, distance, average travel speed, travel time, etc.) for each corridor route, including the LOS using Highway Capacity Manual methodology, which is the industry standard. Previously, processing of the data was accomplished manually using spreadsheets. Use of TravTime software has greatly increased the efficiency of this exercise, with much faster results that are less susceptible to human error. All route lengths are measured from the GPS points and matched to the road network in the King County Geographical Information System. TravTime compares the calculated speed with the travel speed LOS for roads by functional classification, as identified in the *Road Levels of Service* table in the next section. Using the LOS for each roadway, RSD staff then proceeded to concurrency testing for the travel sheds.

An important element of the travel time data collection is documentation and quality control for travel time procedures. All phases of the data collection process include review by the concurrency staff team to ensure accurate data gathering procedures. Documentation includes GeoLogger data files, field notes from data collection, and summary tables of this data for each corridor. Following are some of the quality control checks performed for the 2010 TCM program:

- Check of the field note forms submitted by each driver.
- Review of corridors and routes, distances, and functional classifications.
- Review of speeds and LOS standards.
- Review of shared corridors (the arterial forms the boundary between two travel sheds), rural vs. urban arterials, and incorporated portions of corridors.
- Travel shed mileage.
- Check of recently annexed areas, as well as elections in pending potential annexation areas.

III. Standards Used for Concurrency Testing – Levels of Service

The LOS standards adopted in the King County Comprehensive Plan are used to appropriately encourage growth in the urban area and to determine if future growth can be accommodated on the transportation facilities. Levels of service on roadways range from LOS standard A for free flow to LOS standard F for heavily congested traffic. The LOS for different arterial

classifications and state highways is identified by travel speed in the following table from the King County Code.

There is a different LOS standard for urban areas (LOS standard E) than for rural areas (LOS standard B). In addition, mobility areas established in the rural areas have their own LOS standard. Rural Towns (Fall City, Vashon, and Snoqualmie Pass) have a LOS standard of E, and selected Rural Neighborhood Commercial Centers (Cumberland, Cottage Lake, Maple Valley, Preston) have a LOS standard of D. These LOS standards have remained the same since 2008 and can only be changed during a major comprehensive plan update, which occurs every four years. The next plan update will be in 2012.

ROAD LEVELS OF SERVICE				
Road Classification:	I (State Routes)	II (Principal Arterials)	III (Minor Arterials)	IV (Collector Arterials)
LEVEL OF SERVICE	AVERAGE TRAVEL SPEED (MILES PER HOUR)			
A	>42	>35	>30	>25
B	>34 – 42	>28 – 35	>24 – 30	>19 – 25
C	>27 – 34	>22 – 28	>18 – 24	>13 – 19
D	>21 – 27	>17 – 22	>14 – 18	>9 – 13
E	>16 – 21	>13 – 17	>10 – 14	>7 – 9
F	<=16	<=13	<=10	<=7

From King County Code 14.70.220.B.2

IV. Concurrency Testing Methodology

The 2010 transportation concurrency testing process compared the monitored road miles passing the King County LOS standards with the total monitored road miles in a travel shed. The LOS for travel speed on various arterial classifications and state highways is identified by the King County Code and shown in the *Road Levels of Service* table above. A travel shed is deemed to be concurrent if at least 85 percent of the roadway miles meet the urban and rural LOS standards. If less than 85 percent of the roadway miles pass the LOS standards, the travel shed fails the concurrency test.

Within a travel shed that contains both rural and urban designated land, the passing segment lengths of urban roads (LOS standard E) are added to the passing segment lengths of rural roads (LOS standard B) for a passing mileage total in the entire travel shed. This mileage is then compared to the individual travel shed total mileage, and the percentage pass/fail is determined. The designated rural mobility areas, consisting of Rural Towns and Rural Neighborhood Commercial Centers, are tested separately from the travel shed test in which they are located. The separate test uses road miles within the entire travel shed, but this test is based on a LOS standard E for Rural Towns and LOS standard D for selected Rural Neighborhood Commercial Centers. The result can create a situation where a rural travel shed may fail the rural concurrency test standard of LOS B, but the mobility area with a lower standard of LOS D or E will pass the test. An example of this is the Woodinville travel shed that fails the concurrency test, while the Cottage Lake Rural Neighborhood Commercial Center located in the travel shed passes the test.

V. Bringing Travel Sheds Back into Compliance

The five travel sheds out of compliance in 2010 had a total of 14 road routes or segments that failed concurrency LOS standards. A RSD staff team reviewed the travel time data and field notes for reasons the corridors appeared to be failing. The main congestion areas identified were primarily choke points at major intersections causing delay and slowing vehicle speeds. These causes are due in part to lack of turn channelization, heavy volume, and signal timing. Specific solutions were identified by the team to address needs in each corridor. Each solution was then reviewed and costs were estimated. These projects were then prioritized based on their feasibility and effectiveness in bringing the corridor travel shed back into compliance. The project information is presented in the attached *Summary Table Project List for Achieving Concurrency Compliance in Failing Travel Sheds.*

Bringing a failing travel shed back into compliance depends on the total travel shed compliance percentage and the number and length of the routes out of compliance in each travel shed. If a failing route is long enough, just making that one route compliant can bring the travel shed back into compliance. For example, the Green River Valley travel shed is out of compliance due to two failing corridor routes. Only one of the failing corridor routes needs to be brought back into compliance for the travel shed to pass concurrency. This is the case with all of the travel sheds failing concurrency in 2010.

The road projects identified include a variety of intersection treatments and Intelligent Transportation System signal interconnections. Some projects are already identified in the adopted Transportation Needs Report (TNR) 2008 and the 2010 Capital Improvement Program (CIP), while others are entirely new projects. The new projects will need to be added to the TNR as appropriate, and to the CIP for implementation. Several of the new projects will require involvement by the state and/or by cities, as one of the failing segments is on a state route and three project locations involve cities. The city and state road projects are already being planned or are near construction.

Cost estimates in 2010 dollars were made, and known costs from other jurisdictions were used for each of the new projects identified in the *Summary Table Project List for Achieving Concurrency Compliance in Failing Travel Sheds.* The projects were then prioritized based on cost and feasibility. Projects were given a priority of one (projects perceived easiest to implement) to three (projects perceived most difficult to implement). Identified projects will undergo further review to determine how to move them through the implementation process based in part on the determined priority. Not every road segment will have to be brought back into compliance for a travel shed to pass concurrency. Strategies will be developed to identify a timeline for implementing the projects, including combinations of multiple projects and coordination with other jurisdictions.