

Appendix A

Transportation Issues

Summary

Transportation and transportation infrastructure issues have been central to the public discussion regarding the preparation of an updated Comprehensive Plan for Clark County. This appendix represents a summary of the policy discussions undertaken by the Board of County Councilors:

1. Adoption of a new 20-year transportation capital facilities plan to support the land use plan.
2. Confirmation of the 6-year Transportation Improvement Program as the first 6 years of the transportation capital facilities plan.
3. Amendments to the transportation concurrency standards contained both in the transportation element of the comprehensive plan and in Clark County Code.

The final section of this report describes the strategies and future policy actions which, in some combination, could be adopted to address the projected shortfall in revenues to fully fund the proposed transportation capital facilities plan.

Analysis

The analysis of the Comprehensive Plan map followed the approach used with the prior plan alternatives examined in this process. The plan map was converted to households and employment projections based on the yields from the vacant buildable lands model and the application of the expected zoning. As much as possible, the allocation of households and employment was reviewed with local jurisdictions and adjustments were made as needed to reflect local knowledge of development potential. Table A.1 summarizes the land use inputs used for the transportation analysis.

Table A.1 | Land Use Inputs Used in Transportation Analysis

Households	Retail Employment	Other Employment
217,079	42,214	171,692

Source: Clark County GIS

The land use assumptions were input into the regional transportation demand model maintained by Southwest Washington Regional Transportation Council (RTC) to prepare an assessment of the likely demand on the county’s roadway system (assuming the list of improvements identified in the current Metropolitan Transportation Plan). Where substandard major corridors under County jurisdiction showed a Level-of-Service (LOS) E/F, additional mitigation projects were listed in the Clark County Capital Facilities Plan.

Revenue Perspective

The projected revenue sources include property taxes dedicated to transportation (“road fund”), gasoline tax distributions to the county, traffic impact fees, Public Works Trust Fund loans, expected

grants and miscellaneous revenue streams that accrue for transportation purposes. The analysis accounts for road fund operating expenses that reduce the revenue available for capital facilities projects. The estimated available revenue for county capital transportation improvements over the 20-years of the land use plan is \$533.1 million as adopted in 2014 (ORD 2014-11-03).

20-Year Transportation Capital Facilities Plan

Table A.2 presents the proposed 20-year list of transportation capital facilities projects. This list, as amended, should be adopted with the comprehensive plan and updated on a regular basis (not to exceed five years). It forms the basis of a future update to the Clark County traffic impact fee program.

In developing the 20-year transportation capital project list, the adopted 2016-2021 Transportation Improvement Program (TIP) was used as the starting point, with cost estimates taken directly from the TIP document. The second group of projects includes a list of corridor improvement projects and intersection needs identified to mitigate major regional corridors which exhibited a low level of service in the transportation analysis. The third group of multi-jurisdictional projects includes regional transportation projects that are programmed in the existing Metropolitan Transportation Plan and were assumed in the 2035 future network for the transportation analysis. Finally, the fourth group is a list of projects that are necessary to maintain, preserve and repair the County's transportation system on a regular annual cycle. The estimated cost of county transportation improvements over the 20-year land use plan is \$691.2 million.

Table A.2 | Clark County Twenty Year Capital Facilities Plan

CAPITAL FACILITIES PLAN 2016-2035									
I. Committed - TIP (2016-2021)									
Road	From	To	Comments	Total Costs in 6-year TIP	Total Project Cost	Spent Prior to 2016	Completed by 2021	Cost to Complete after 2021	2016-2035 Project Costs
NE 119th St	NE 72nd Ave	NE 87th Ave		\$ 3,744,000	\$ 23,655,000	\$ 19,911,000	Yes	\$ -	\$ 3,744,000
NE 47th Ave @ NE 78th St	Intersection			\$ 214,000	\$ 2,623,000	\$ 2,409,000	Yes	\$ -	\$ 214,000
NE 94th Ave	NE Padden Pkwy	NE 99th St		\$ 5,021,000	\$ 8,973,000	\$ 3,952,000	Yes	\$ -	\$ 5,021,000
TSO Projects (5)	Various			\$ 3,766,000	\$ 4,981,000	\$ 1,215,000	Yes	\$ -	\$ 3,766,000
Highway 99	NE 99th St	NE 103rd St		\$ 10,116,000	\$ 10,757,000	\$ 641,000	Yes	\$ -	\$ 10,116,000
NE 99th St	NE 94th Ave	NE 117th Ave		\$ 2,065,000	\$ 10,547,000	\$ 1,304,000	No	\$ 7,178,000	\$ 9,243,000
NE 119th St	NE 50th Ave	NE 72nd Ave		\$ 6,225,000	\$ 6,994,000	\$ 769,000	Yes	\$ -	\$ 6,225,000
NE 10th Ave	NE 154th St	NE 164th St		\$ 18,824,000	\$ 22,751,000	\$ 3,927,000	Yes	\$ -	\$ 18,824,000
NE 10th Ave	NE 149th St	NE 154th St		\$ 9,929,000	\$ 10,195,000	\$ 266,000	Yes	\$ -	\$ 9,929,000
NE 179th St	NE Delfel Rd	NE 15th Ave		\$ 1,876,000	\$ 13,100,000	\$ 950,000	No	\$ 10,274,000	\$ 12,150,000
NE 119th St	NE 87th Ave	NE 112th Ave	1.0 capacity EB	\$ 11,342,000	\$ 12,017,000	\$ 675,000	Yes	\$ -	\$ 11,342,000
NE 15th Ave	NE 179th St	NE 10th Ave		\$ 640,000	\$ 15,000,000	\$ -	No	\$ 14,360,000	\$ 15,000,000
Salmon Ck Ave	WSU Entrance	west of NE 50th Ave	WSU provide R/W; env. Issu	\$ 1,523,000	\$ 18,062,000	\$ 122,000	No	\$ 16,417,000	\$ 17,940,000
NE 72nd Ave	NE 122nd St	NE 133rd St		\$ 2,600,000	\$ 10,800,000	\$ -	No	\$ 8,200,000	\$ 10,800,000
Miscellaneous Projects				\$ 600,000	\$ 650,000	\$ 50,000	Yes	\$ -	\$ 600,000
Totals				\$ 78,485,000	\$ 171,105,000	\$ 36,191,000		\$ 56,429,000	\$ 134,914,000
II. New - Concurrency Driven Projects									
Road	From	To	Comments	Cost					
Padden Pkwy @ Andresen	Intersection		Interim upgrade	\$ 15,000,000					
Ward Road	NE 88th St	NE 172nd Ave Bridge	1.7 capacity NB	\$ 9,700,000					
NE 72nd Ave	NE 133rd St	NE 219th St	NB 1.23 capacity	\$ 19,200,000					
Urban Arterial Intersections	Minnehaha Street & NE 17th Avenue		New 2016-2035 Project	\$ 15,000,000					
	NE 87th Avenue & NE 63rd Street								
	NE 117th Street & NE Stutz Road								
	NW 36th Avenue & Bliss Road								
	NE 119th Street & NE 132nd Avenue								
	NE 239th Street & NE 92nd Avenue								
NE 172nd Ave	NE Ward Rd	NE 119th St	New 2016-2035 Project	\$ 6,000,000					
NE Ward Rd	NE 162nd Ave	NE Davis Rd	New 2016-2035 Project	\$ 6,000,000					
NE 172nd Ave	NE 18th St	NE 39th St	New 2016-2035 Project	\$ 4,000,000					
NE 152nd Ave	NE Padden Pkwy	NE 99th St	New 2016-2035 Project	\$ 8,000,000					
NW Lakeshore Ave	NW 78th St	NW 109th St	New 2016-2035 Project	\$ 15,000,000					
Cost of New Projects				\$ 97,900,000					

III. New - Regional & Partnership Projects				
Road	From	To	Comments	Cost
NE 179th St/I-5 Interchange/15th Ave	Delfel	NE 15th Ave	County road only	\$ 16,900,000
SCIP Phase 2	NE 134th St	I-205	Assumes 50% WSDOT	\$ 17,500,000
NE 182nd Ave @ SR-500 ¹	Intersection			\$ 3,000,000
NE 179th St@29th Ave or @50th Ave	Intersections		Environmental Issues	\$ 5,000,000
County Cost of Partnership Projects				\$ 42,400,000
IV. TIP On-Going Programs				
Programs	Potential Specified Projects	Estimated Annual	20-Year Costs	2016-2021 TIP Costs
Advanced Right-of-Way Program		\$ 100,000	\$ 2,000,000	\$ 60,000
Bridge Repair/Rehab		\$ 2,600,000	\$ 52,000,000	\$ 8,472,000
Road Preservation		\$ 9,000,000	\$ 180,000,000	\$ 50,124,000
Rural Road Improvement Program	NE 19th Street & 276th Avenue	\$ 2,000,000	\$ 40,000,000	\$ 5,196,000
	NE 212th Avenue & NE 109th Street			
	NE Ward Road/NE182nd Avenue & NE 119th Street			
	NE 144th Street & NE 137th Avenue			
	NE 137th Avenue & NE 159th Street			
	NE 159th Street & NE 142nd Avenue			
	NE 179th Street & NE 92nd Avenue			
	NE 199th Street & NE 29th Avenue			
	NE 199th Street & NE 50th Avenue			
NE 199th Street & NE 167th Avenue				
NE 259th Street & NE 72nd Avenue				
Sidewalks and ADA		\$ 1,500,000	\$ 30,000,000	\$ 6,956,000
Transportation Safety Imp.		\$ 3,600,000	\$ 72,000,000	\$ 10,441,000
Urban Development Road Prgm		\$ 1,700,000	\$ 34,000,000	\$ 4,084,000
Traffic Signal Optimization		\$ 300,000	\$ 6,000,000	
Cost of OGP's		\$ 20,700,000	\$ 416,000,000	\$ 85,333,000
Notes:			CFP COST	\$ 691,214,000
1 Amounts shown in 2014 Dollars			TIP COST	\$ 163,818,000

Level-of-Service Standards

Level-of-service (LOS) standards serve both as a standard of measure in administration of the county's transportation concurrency program and as a general indicator of congestion levels. The goals of the Transportation Concurrency Program and the Growth Management Act require a balance between land development and the transportation facilities serving that development. The variables in this balance include the growth rate, transportation investments and level-of-service standards. The growth rate was chosen from a range provided by the State Office of Financial Management. Transportation improvement investments were planned over the 20-year horizon based on transportation model analysis and a projection of current revenue streams. The LOS standards are subject to local discretion, but to some extent are dependent on the growth rate, revenue, capital improvements and the local level of tolerance for peak hour traffic congestion. Maintaining current LOS standards would require either increasing transportation investments through more revenue or a reduction in the chosen growth rate and the supply of buildable lands.

Even with the capacity provided by the improvements in the transportation CFP and the Metropolitan Transportation Plan, the transportation cost/revenue analysis shows that it may not be possible to maintain the current adopted corridor level-of-service standards. The county population will increase by about 128,586 residents. The number of jobs will also grow to approximately 101,153. These two major factors plus the projected increase in vehicle miles traveled will likely result in levels of congestion that could require a lowering of standards in the future. One purpose of the concurrency program is to prevent land development from greatly outpacing transportation facilities and services. If specific areas of the county rapidly develop before the public and private investments are made in surrounding corridors, moratoria declared by ordinance may be one result. The county also uses Urban Holding to insure that critical improvements are reasonably funded before new areas are opened for urban development.

WAC 365-196-415(2)(b) recommends "Counties forecast needs for capital facilities during the planning period, based on the levels of service or planning assumptions selected and consistent with the growth, densities and distribution of growth anticipated in the land use element. The forecast should include reasonable assumptions about the effect of any identified system management or demand management approaches to preserve capacity or avoid the need for new facilities." The needs analysis for the 2016-2035 Comprehensive Growth Management Plan utilized travel demand forecast modeling to determine locations where improvements to the transportation system may be necessary. This analysis focused on two types of transportation deficiencies: segments (link) and intersections.

Segment (Link) Analysis

The link deficiency analysis focused on the PM peak hour Committed 2035 RTC model. All links showing volume to capacity (v/c) ratios greater than 0.90 were identified as corridor level deficiencies. Once the deficiencies were identified, the PM Peak hour Capital Facilities Plan 2035 RTC model was analyzed for deficiencies, using the same link level criteria ($v/c > 0.9$). The link level network improvements between the Committed model and Capital Facilities Plan model were identified as projects and reviewed to determine which (if any) deficiency each project addressed. The projects that met an identified link level deficiency were kept in the updated Financially Constrained Project list. Projects included in the Financially Constrained model but not addressing any identified deficiencies were removed from the updated Capital Facilities Plan Project list. All link deficiencies identified in the Capital Facilities Plan model were addressed with new capacity improvement projects. These projects were added to the updated Capital Facilities Plan Project list.

Comparisons between the RTC models with the old land use and the updated land use indicated significant trip loss within the Vancouver city limits, especially on the freeways (I-5 and I-205). As this trip loss was attributed to some outdated land use projects within the Vancouver city limits, the major WSDOT projects on I-5 and I-205 were not compared to modeled deficiencies, but were kept unchanged on the updated Capital Facilities Plan project list. The same approach was used when analyzing projects in urban areas near the Vancouver city limits.

All new segment projects were coded simply as increased link level capacity within the travel models. In addition, the committed model network was updated to include all the committed projects from the most recent Capital Facilities Plan.

Intersection Analysis

The intersection deficiency analysis also focused on the PM peak hour Committed 2035 RTC model. The analysis focused on unsignalized intersections with forecasted volumes high enough to trigger possible improvements. Unsignalized intersection deficiencies were estimated based on the conflicting major/minor street unsignalized capacities. The conflicting volume analysis helps identify intersections that may fail to meet LOS E standards or may meet signal warrants. As all the intersection analysis was performed at the approach link level (turn volumes were not analyzed). Intersections identified by this process do not necessarily require signalization and in some cases, other intersection improvements may be sufficient. The potential deficiencies were revised after assuming some traffic disaggregation on the modeled collector roadways, as the Committed 2035 RTC model is a simplified network with aggregated volumes. For example, potential deficiencies that were triggered based on aggregated volumes from local roads not included in the Committed 2035 RTC model were not included as intersection deficiencies since these volumes would likely be spread across multiple intersections. Next, the intersection deficiencies were compared to the corridor level deficiencies and overlapping deficiencies were grouped into one project. All remaining intersection deficiencies identified were addressed with new intersection improvement projects. These projects were added to the updated Capital Facilities Plan Project list.

The committed and financially constrained segment and intersection projects for the Clark County unincorporated areas are shown in the attached figure and tables.

Project Identification

The methodology used to analyze segments and intersections resulted in the Clark County 2035 Needs Analysis, detailed in Table A.3. This list separates projects into six categories:

- Modified Existing CFP Projects
- Newly Identified CFP Projects
- Removed Existing CFP Projects
- Committed CFP Projects
- Existing CFP Projects
- WSDOT Projects

The modified “Existing CFP Projects” category recommend amending one project currently listed in the 2016-2021 Transportation Improvement Program. The “Newly Identified CFP Projects” section recommends adding 26 projects to the 20-year Capital Facilities Plan. The “Removed Existing CFP Projects” section recommends removing a project from the 20-year Capital Facilities Plan because it was not identified as a capacity need. The “Committed CFP Projects” section identifies projects in the existing 2016-2021 Transportation Improvement Program (TIP) that are needed to serve future

growth. The “Existing CFP Projects” category identifies projects that are currently included in the 2014-2033 Capital Facilities Plan that are still needed. The “WSDOT Projects” category includes projects using State funds on State facilities.

The following list in Table A.3 is the result of analysis that forecasted potential areas of congestion in the next 20 years. The Capital Facilities Plan incorporates some, but not all of these identified locations into the 20-year project list. Locations that are not included may be street segments that are fully developed and cannot be expanded beyond the existing classification or constrained by environmental areas.

Table A.3. | 2035 Capital Transportation Needs

2016-2021 TIP Projects		
Road	From	To
NE 119th St	NE Salmon Creek Ave	NE 72nd Ave
NE 99th St	NE 94th Ave	NE 107th Ave
NE 99th St @ SR 503	Intersection	
Highway 99	NE 99th St	NE 107th St
NE 119th St	NE 72nd Ave	NE 87th Ave
NE 10th Ave	NE 154th St	NE 164th St
NE 47th Ave @ NE 78th St	Intersection	
NE 94th Ave	NE Padden Pkwy	NE 99th St
Existing Capital Facilities Plan Projects		
Road	From	To
NE 15th Ave Extension	NE 179th St	NE 10th Ave
Salmon Creek Ave	WSU Entrance	NE 50th Ave
NE 119th St	NE 87th Ave	NE 112th Ave
NE Padden Parkway	NE 78th St	NE Ward Rd
NE 10th Ave	NE 149th St	NE 154th St
NE 179th St/I-5 Interchange	Delfel	NE 15th Ave
NE Ward Rd	NE 88th St	NE 172nd Ave Bridge
SCIP Phase 2	NE 134th St	I-205
NE 179th St@50th Ave	Intersection	
NE 179th St@29th Ave	Intersection	
NE 182nd Ave @ SR-5001	Intersection	
NE 72nd Ave	St John's Road	NE 223rd St
Newly Identified Projects		
Road	From	To
NE Delfel Rd	NW 179th St	NW 199th St
NE 29th Ave	NE 134th St	NE 179th St
NE 172nd Ave	NE Ward Rd	NE 119th St
NE Ward Rd	NE 162nd Ave	NE Davis Rd
NE 172nd Ave	NE 18th St	NE 39th St
NW 78th St	Hazel Dell Ave	Hwy 99
NE 107th Ave	NE Covington Rd	NE 99th St
NE 99th St	NE 7th Ave	Hwy 99
NW 31st Ave	NW 219th St	NW 229th St
NE 82nd Ave	NE 259th St	NE Daybreak Rd
NE 182nd Ave	NE 159th St	NE 174th St
NE 152nd Ave	NE Padden Pkwy	NE 99th St
NE Fourth Plain Blvd	NE 166th Ave	NE 65th St
NW Lakeshore Ave	NW 78th St	NW 109th St
Minnehaha Street & NE 17th Avenue	Intersection	
NE 87th Avenue & NE 63rd Street	Intersection	

NE 19th Street & 276th Avenue	Intersection
NE 117th Street & NE Stutz Road	Intersection
NW 36th Avenue & Bliss Road	Intersection
NE 212th Avenue & NE 109th Street	Intersection
NE Ward Road/NE182nd Avenue & NE 119th Street	Intersection
NE 119th Street & NE 132nd Avenue	Intersection
NE 144th Street & NE 137th Avenue	Intersection
NE 137th Avenue & NE 159th Street	Intersection
NE 159th Street & NE 142nd Avenue	Intersection
NE 179th Street & NE 92nd Avenue	Intersection
NE 199th Street & NE 29th Avenue	Intersection
NE 199th Street & NE 50th Avenue	Intersection
NE 199th Street & NE 167th Avenue	Intersection
NE 239th Street & NE 92nd Avenue	Intersection
NE 259th Street & NE 72nd Avenue	Intersection

Removed Existing Capital Facilities Plan Projects

Road	From	To
NE 99th St	NE 107th Ave	SR 503

WSDOT Projects

Road	From	To
SR 503	NE 87th St	SW 40th St
NW 219th St	NW 31st Ave	I-5 NB Ramps
I-205	Vancouver City Limits	Padden Pkwy
I-5	NE 179th St	NE 99th St
SR 503	NE Gren Fels Dr.	NE 132nd Ave
SR 503	NE Rosewood Ave	NE 87th St
SR 503	NE Gren Fels Dr.	NE 269th St
NE 50th Avenue & NE 219th Street	Intersection	

the total projected capital cost, which could be considered significant in the absence of any strategies to close the gap.

There are a variety of strategies and policy actions available to the Board of County Councilors to balance the 20-Year CFP. Options for increasing revenues include updating Traffic Impact Fees, adopting a motor vehicle excise tax of up to \$20 per vehicle and increasing the local option fuel tax to the statutory limit. Traffic Impact Fee revenue is projected to be \$43 million over the 20-year period. Based on recent policy decisions and preliminary work on the Traffic Impact Fee update, it is realistic to assume that an additional \$40 to 50 million will be raised from these fees. Grant revenue estimates are also very conservative.

On the cost side, the public share of many of the capital projects could be substantially reduced if policy changes were adopted that limited Traffic Impact Fee reimbursements to only the extra width of the roadway. Current policy provides reimbursement for construction of even that portion of the frontage improvements that would normally be required with development.

A second round of reductions in the capital projects list is also likely. Several projects on the list would not contribute substantially to mobility on the transportation network in proportion to their estimated cost. Other listed projects are in areas that are likely to be annexed before county financing is available and would then become the responsibility of the annexing city.

The Transportation Capital Facilities Plan will be reviewed on a regular basis, not to exceed every five years, to ensure that the projected gap between costs and revenues is declining. If the potential shortfall increases and becomes critical, the potential courses of action in addition to those identified above would include reduction in the level of service standards and reassessment of the land use plan.

The county modified the transportation concurrency program in 2014 to better protect against the unplanned use of newly created roadway capacity, while allowing new developments to be permitted with predictability. In addition, the revised program set concurrency standards at a level that is consistent with the 20-Year Comprehensive Plan, population and employment forecast, the Capital Facilities Plan and capital funding projections.

Chronology of Transportation Concurrency Ordinances

Ordinance No.	Content
2000-10-03	Amended the Transportation Concurrency Management System (CCC 12.41); amended Chapter 3 and Appendix A of the Comprehensive Plan and adopted a revised CFP.
2001-08-01A	Modified the Traffic Impact Fee; modified the transportation CFP; dissolved TIF overlay areas.
2001-12-01	Emergency adoption of a moratorium in the Salmon Creek Area.
2002-02-05	Confirmed the filing of certain development applications within the Salmon Creek Moratorium area; and declaring an emergency expansion of such area.
2002-03-11	Confirmed the expanded moratorium area.
2002-12-02	Extended the duration of the Salmon Creek moratorium.

2003-04-02	Extended the duration of the Salmon Creek moratorium.
2003-04-09	Modified transportation concurrency and CFP; amended Arterial Atlas; Salmon Creek “fix”.
2003-04-16	Corrected 2003-04-09.
2003-06-02	Reserved capacity in Salmon Creek area for preferred land uses.
2005-07-21	Declared a moratorium within the Salmon Creek Moratorium area by emergency ordinance.
2005-09-07	Confirmed the Salmon Creek Moratorium.
2006-09-01	Extended the Salmon Creek Moratorium.
2014-08-09	Replaced the level-of-service approach to measure congestion with a volume-to-capacity ratio approach.
2014-11-03	Adopted the 2014-2033 Capital Facilities Plan.

