

Technical Memorandum #2

DATE: April 5, 2007
TO: Joe Dills, OTAK
FROM: Carl Springer, PE; Chris Maciejewski, PE
SUBJECT: **Transportation Network Alternatives and Initial System Assessment for North Bethany Concept Plan**

TASK: Work Scope Tasks 4.2, 4.3, 4.4 P#06215-000

This memorandum presents the initial transportation system findings related to the three concept plan alternatives developed for North Bethany. The primary purpose of this stage of analysis is to assist in further refining the appropriate street system within the North Bethany Concept Plan area. This includes an evaluation of the sizing, facility type and general performance of streets within the concept plan area or directly adjacent to it. Off-site street performance within the study area will be presented at a later date to identify specific intersection bottlenecks, system needs and expected facility improvement costs throughout the greater study area.

General North Bethany Transportation Study Area

In the previous memo dated October 9, the North Bethany transportation study area was defined to ensure that adequate analysis was provided of facilities most likely to be impacted by development in this area. To summarize, the study area generally includes major public streets:

- North of US 26 between Helvetia Road and Cedar Hills Boulevard,
- Connections easterly into Multnomah County via Germantown Road, Springville Road, Cornell Road and Cornelius Pass Road.
- Freeway interchanges on US 26 at Helvetia Road – Shute Road, Cornelius Pass Road, 185th Avenue, Bethany Boulevard – Cornell Road, Murray Boulevard, and Cedar Hills Boulevard.

The focus of this initial analysis is primarily within the Concept Plan area, which includes all the streets within the 800-acre planning area, and any major street that faces the planning area. The adjacent streets include Springville Road, 185th Avenue, and Germantown Road. Many of the streets within the Concept Plan area are new, and a generic labeling convention was

adopted to describe these streets for each of the plan alternatives. Refer to the attached map for the general boundaries of these two study areas.

Initial Assessment Objectives

The focus of this memorandum is on the initial travel forecasts for 2030 and a general evaluation of how the alternative street networks perform both on-site and off-site. The objectives addressed through this stage of the transportation evaluation were:

- Identifying the general type and size of the concept streets on-site, based on the concept plan configurations, and the expected demands from North Bethany development as well as the surrounding Greater Bethany area.
- Compare and contrast the roadway facilities needs for arterial and collector streets within the plan area for the three plan alternatives.

The next stage of the transportation analysis, to be presented at a later date, will address more detailed system needs and costs including:

- Peak hour intersection performance evaluation throughout the study area.
- Identifying additional system improvements needed off site to serve 2030 traffic conditions for any of the three concept plans. (or selected plan).
- Identify off-site bottlenecks and system needs to maintain mobility standards.
- Group transportation system needs and recommended projects that match growth assumptions for 2030, both with and without development in North Bethany.
- Estimated construction costs for on-site and off-site street improvement projects.

Travel Forecasts

The transportation system analysis builds on the initial work which was reported in a previous memo dated October 9, 2006 that identified the general study area, steps for selecting the appropriate travel demand model and plan horizon year, and steps to refine the regional travel demand model for sub-area planning applications such as this one. Following the previous memo and discussions at the TAC and SWG meetings, the project team selected the 2030 Westside travel demand model to be used for this effort.

Travel forecasts were prepared for each of the three Concept Plans developed by the consultant team. The Concept Plan alternatives included:

- Parallel Street Network
- Perimeter Street Network
- Park Ridge Network

For each case, the total number of dwelling units within the North Bethany Concept Plan area was assumed to be constant, given the preliminary stage of the process. In addition, general

development assumptions were made for the lands outside the Urban Growth Boundary to the west, east and north that are referred to in this process as Greater Bethany. The specific land use assumptions about the number of housing units and employment by transportation analysis zone (TAZ) are shown in the attachments to this memo. In general, the North Bethany planning area (the 800 acres within the Concept Plan area) had about 5,000 dwelling units allocated, and the Greater Bethany planning area had about 15,000 additional dwelling units allocated.

Forecasts were made for several combinations, with and without North Bethany and Greater Bethany, to help understand the amount of traffic associated with development in each area, and to track where travel patterns from those areas would affect the street system off-site. Screenshots of the travel demand model forecasts for each case is attached in the appendix. The values on the plot represent peak hour traffic volumes (autos and trucks) for each travel direction.

Assumed Street System Improvements

The starting point for the 2030 performance analysis relied on the Financially Constrained list of street system improvement projects contained in the latest adopted Regional Transportation Plan. The Financially Constrained list contains those projects that are most likely to be funded based on current revenue streams from local, state and federal sources. However, just because a project is in the Financially Constrained list, that doesn't preclude it from being potentially impacted by N. Bethany development. The off-site street network assumptions were previously reported in the October 2006 memo, and are restated in Table 1 for streets within the study area.

Table 1: Washington County MSTIP 3 Projects within Study Area

Project	Description
185th from Westview HS to West Union	Five lanes with bike and pedestrian facilities
Bethany Blvd from Bronson to West Union	Five lanes with bike and pedestrian facilities
Cornell Road from Evergreen Parkway to Bethany Boulevard	Five lanes with bike and pedestrian facilities
Murray from Hwy 26 to Cornell Road	Five lanes with bike and pedestrian facilities
Saltzman Road from Cornell Road to Burton	Three lanes with bike and pedestrian facilities and intersection improvements
West Union/Helvetia Intersection	Add turn lanes and vehicle storage with bike facilities

Source: http://www.co.washington.or.us/deptmts/lut/cap_proj/mstiphis.htm

For a starting point for analyzing the on-site system, it is expected that existing arterial streets that front the North Bethany site will be upgraded as development in that area occurs. The present Washington County Transportation System Plan provides for three-lane facilities on all arterial roadways. The exception is on Springville Road, which would be five-lanes from 185th Avenue to the PCC entrance, and then three-lanes from that point to Kaiser Road. As a

condition of approval, the Arbor Oaks residential development along Springville Road was conditioned to extend the five-lane improvements on Springville Road further east, out to their main entrance.

Other key Washington County improvements included with the 2030 forecasts for the purpose of a starting point were:

- West Union Road – 5-lanes from 185th Avenue to Cornelius Pass Road
- Saltzman Road – 3 lanes from Burton Road to Laidlaw Road

In addition to county roadway improvements noted above, there is one key ODOT project within the Bethany study area that was assumed for this purpose:

- Additional travel lane in each direction on US 26 from Cornell Road to 185th Avenue

These additional roadway improvement projects will be tested in further detailed analysis to determine which projects needs are triggered with different land use inputs (2030 without North Bethany, 2030 with North Bethany, and 2030 with the Greater Bethany growth concept). Findings from this analysis will be a key input to defining the proportionate share of improvement costs attributable to development in North Bethany.

Model Calibration Results

The regional model network and descriptions of where and how land development might occur was refined to provide reasonable travel forecasts for local planning purposes. This involved confirming the assumptions about street connections, speeds and capacities for existing streets, and for programmed improvements that are reasonably likely to be constructed within the next 20 years. It also included subdividing the large regional transportation analysis zones (TAZs) to better fit with the planning boundaries of interest in this study.

An additional adjustment was made to account for higher traffic generation to and from the PCC Rock Creek campus. We found that the original model grossly underestimated trip activity at the campus compared to actual traffic counts, and so the amount of trips for this one area was scaled up to better match traffic counts. This scaling factor was also applied to the 2030 forecasts for PCC activity.

The refined model data was compared to traffic counts on arterial roadways in the study area. Table 2, on the next page, compares the traffic counts at six key locations with the model forecasts before (base model) and after (calibrated model) the above adjustments were made. The table shows the one-hour volumes on each roadway and the percentage that they represent of the sum of the six roadways. The network refinements and adjustments to the PCC trip generation significantly improved the resulting assignments on these key north-south arterial corridors.

Table 2: PM Peak Hour Volumes Calibration Results

Facility	Location	Actual Count		Base Model		Calibrated Model	
		Count	%	Count	%	Count	%
Helvetia	S. of West Union	546	10%	311	8%	437	9%
Corn. Pass	S. of West Union	1754	33%	1296	32%	1357	28%
185th	N. of West Union	1067	20%	656	16%	1168	24%
Bethany	S. of Laidlaw	886	17%	358	9%	774	16%
Kaiser	N. of West Union	600	11%	949	23%	633	13%
Saltzman	N. of West Union	429	8%	541	13%	490	10%
	Total	5282		4111		4859	

Transit Service

Two fixed-route buses that terminate at PCC Rock Creek campus provide existing transit service within the North Bethany planning area. These buses operate with scheduled service generally every 30 minutes during weekdays. As the PCC enrollment expands and development occurs in North Bethany and beyond, TriMet will re-evaluate the opportunity to expand and enhance bus service to other areas. This type of transit service planning can require extensive analysis, and is well beyond the scope of the concept planning efforts.

However, in order to understand how TriMet has responded to similar communities that lie at the edge of the urban area with relatively low density residential or employment areas, we reviewed the existing transit services in comparable areas of Washington County, using the Metro travel demand model data. At this stage of the analysis, we wanted to determine if the transit services could play a significant role in shaping, or lessening the capacity needs of the roadway system. In general, we found that transit ridership in the urban fringe areas accounted for less than three percent of the peak period trips made, and often less than one percent. Therefore, while it is worthwhile to design the community to encourage and facilitate higher transit service, it is not expected to be a significant factor for lessening capacity needs of the transportation system within the North Bethany plan area.

2030 Performance Assessment

Streets and highway travel performance was assessed by comparing the planned system capacity with the 2030 travel demand. This general analysis was done for every roadway in the system, which includes highways, arterials and collector roadways. The ratio of volume-to-capacity is a useful metric for determining facility size and general performance. Further detailed assessments will be made later in the planning process to determine the expected operations at major intersections and interchanges during peak travel periods. The outcomes of the performance evaluation, and the criteria used to compare and contrast the planning alternatives, are discussed in the following section.

Evaluation Criteria

The evaluation criteria selected for the transportation system assessment are summarized in Table 3 on the next page. The criteria are based on transportation planning guidelines that conform with existing policies about efficient and low impact street design, and the minimum acceptable performance measures. The preliminary cost estimates developed at this stage of the plan are a first cut effort to predict the total investment required, which will be a critical component of the Concept Plan. This initial estimate relies on general unit costs per foot, and does not account for many details that can substantially increase construction costs, such as topographic or environmental constraints. These elements will be identified later in the plan as more specific plans are developed.

Table 3: Transportation System Evaluation Criteria

Title	Description	How it was Applied
V/C	Link volume-to-capacity ratio	Check for compliance of minimum v/c ratio by travel direction on highways, arterials and collectors per ODOT and Wash. Co standards.
Spacing	Street and access spacing for arterials and collectors	Highlight locations that would not conform to Wash. Co. guidelines for street spacing and access spacing standards and adjust, as needed.
Environmental	Designated wetland or stream buffers	Using environmental data compiled by other team members, avoid or minimize street crossings within these areas; where major impacts are unavoidable, highlight impacts.
Cost	Preliminary Cost Estimates to Construct	Sketch planning level estimates using general unit cost estimates -- to be refined later in process. <i>(to be applied later)</i>

Facility Recommendations within Planning Area

The travel forecasts within the North Bethany planning area itself showed that the great majority of street facilities could be designed as two or three-lane roadways, and they would have sufficient carrying capacity to serve full development of the site. What is the distinction between number of lanes and functional class? Definitions of classifications in this intro section would be helpful for the un-initiated.

There are a few exceptions to this finding. Springville Road is expected to carry more traffic than can be served by a three-lane facility between 185th Avenue and the PCC campus entrance. Preliminary street functional class and roadway sizes were developed for each of the three concept plans. A convenient naming convention was adopted for streets within the plan area that do not exist today. Copies of the maps are attached, and discussed below.

Parallel Street Network

The Parallel Street network had the most refinements in terms of the local street and collector street system of any of the plans. The forecasting analysis showed that many of the streets indicated in the sketch plan could operate adequately as two-lane local streets, and did not need the higher design scale of a collector or arterial street. Those include Road “C” and all other roadways not specifically labeled on the diagram. Specific recommendations for collector and arterials are summarized in Table 7.

Table 4: Parallel Street Network Preliminary Facilities

Roadway	Segment	Functional Class	Number of Lanes
Road “A”	185th Avenue to eastern plan limit	Arterial	3-lanes
Springville Road	185th Avenue to Road “E”	Arterial	5-lanes
Springville Road	Road “E” to eastern plan limit	Arterial	3-lanes
185th Avenue	Springville Road to Germantown Road	Arterial	3-lanes
Kaiser Road	Springville Road to Germantown Road	Arterial	3-lanes
Road “B”	PCC campus to eastern plan limit	Collector	2-lanes with turn lanes at arterial intersections.
Road “D”	Road “B” to Germantown Road	Collector	2-lanes with turn lanes at arterial intersections.
Road “E”	Springville Road to Road “A”	Collector	2-lanes with turn lanes at arterial intersections.
Road “F”	Springville Road to Road “A”	Collector	2-lanes with turn lanes at arterial intersections.
Road “G”	Springville Road to Road “A”	Collector	2-lanes with turn lanes at arterial intersections.

The seven roadway crossings of the greenway north of Springville Road seems to be more than would be required for motor vehicle carrying needs. The other facilities could be designed as pedestrian / bicycle only facilities, or consolidated with named streets on the diagram.

Perimeter Street Network

Similar to the previous network, the recommendations for arterials and collectors within the North Bethany plan area as summarized in Table 8. This plan has one fewer north-south collectors compared to the Parallel Street plan, and the forecasts appear to support the adequacy of not having the additional facility. However, the extension of Road “E” from Road “A” to Germantown Road is a desirable feature of this plan. As with the Parallel Street network, this facility carries a significant volume of traffic, and helps to balance the demands on other connections to Germantown Road via 185th Avenue and via Kaiser Road.

Aside from those points, the overall findings are very similar to the previous plan. The three crossings to the greenway north of Springville Road that are not named on the diagram could be designed as pedestrian / bicycle only facilities, or consolidated with named streets on the diagram.

Table 5: Perimeter Street Network Preliminary Facilities

Roadway	Segment	Functional Class	Number of Lanes
Road “A”	185th Avenue to eastern plan limit	Arterial	3-lanes
Springville Road	185th Avenue to Road “E”	Arterial	5-lanes
Springville Road	Road “E” to eastern plan limit	Arterial	3-lanes
185th Avenue	Springville Road to Germantown Road	Arterial	3-lanes
Kaiser Road	Springville Road to Germantown Road	Arterial	3-lanes
Road “B”	PCC campus to eastern plan limit	Collector	2-lanes with turn lanes at arterial intersections.
Road “D”	Road “B” to Germantown Road	Collector	2-lanes with turn lanes at arterial intersections.
Road “E”	Springville Road to Road “A”	Collector	2-lanes with turn lanes at arterial intersections.
Road “G”	Springville Road to Road “A”	Collector	2-lanes with turn lanes at arterial intersections.

Ridge Park Street Network

The Ridge Park street network has several features that differ from previous concept plans. The first is the ring road along the edge of community park area, and the Park Block style

connection from the Ridge Park to the eastern school site. In addition, the latest version of this plan does not show roadway connections to the PCC campus, and it does not include another connection via Road “D” to Germantown Road. The forecasted volumes on Road “E”, which is the entry road for the Arbor Oak development, would be higher than expected for a two-lane facility, and may need to be upgraded to three-lanes to reduce impacts to residential development fronting this facility.

The recommendations for arterials and collectors within the North Bethany plan area are summarized in Table 9 for the Ridge Park plan.

Table 6: Ridge Park Street Network Preliminary Facilities

Roadway	Segment	Functional Class	Number of Lanes
Road “A”	185th Avenue to eastern plan limit	Arterial	3-lanes
Springville Road	185th Avenue to Road “E”	Arterial	5-lanes
Springville Road	Road “E” to eastern plan limit	Arterial	3-lanes
185th Avenue	Springville Road to Germantown Road	Arterial	3-lanes
Kaiser Road	Springville Road to Germantown Road	Arterial	3-lanes
Road “B”	Road “X” to eastern plan limit	Collector	2-lanes with turn lanes at arterial intersections.
Road “D”	Road “X” to Germantown Road	Collector	2-lanes with turn lanes at arterial intersections.
Road “E”	Springville Road to Road “X”	Collector	3-lanes with turn lanes at arterial intersections.
Road “F”	Road “E” to Road “A”	Collector	2-lanes with turn lanes at arterial intersections.
Road “G”	Springville Road to Road “A”	Collector	2-lanes with turn lanes at arterial intersections.
Road “X”	Road “D” to Road “G”	Collector	2-lanes with turn lanes at arterial intersections.

Potential Additional Needs with Greater Bethany

When considering the extra growth in traffic associated with Greater Bethany (an extra 15,000 dwelling units to the north and west of North Bethany), it was expected that the needs for street systems in North Bethany would change substantially on the arterial facilities. However, our analysis showed that the facilities described in the previous section would be sufficient in all but a few cases. Those cases are discussed below.

- 185th Avenue – the 3-lane capacity north of Springville Road to Germantown Road would no longer be sufficient for Greater Bethany. A full 5-lane arterial cross-section would be required. As noted previously, the segment of 185th Avenue north of

Springville Road has a significant slope, and special consideration will be needed to implement arterial design standards, especially if the intersection at Springville Road is upgraded to traffic signal controls.

- Road “A” – this east-west roadway connects 185th Avenue to the eastern edge of the North Bethany Plan in all three scenarios parallel to Germantown Road. For the Greater Bethany scenario, this roadway was tested with an extension southeasterly to connect to Laidlaw Road near 130th Avenue. This connection did attract more traffic via routes along Saltzman Road, which would help relieve demands on the Bethany Boulevard corridor. In addition, this roadway was tested with an extension to the west to connect to Cornelius Pass Road. This connection was found to relieve demands on 185th Avenue and West Union Road. However, within the North Bethany Plan area, the carrying capacity of a 3-lane roadway was found to be sufficient. Currently, Washington County standards for a 3 lane arterial include a 90-foot right of way. More discussion about the sizing of this roadway is appropriate as the process moves on.
- Springville Road – it does not appear to be necessary to extend the planned 5-lane section of Springville Road easterly to Kaiser Road. Major north-south corridors along 185th Avenue and Cornelius Pass Road appear to carry the bulk of Greater Bethany demands to and across US 26. However, this corridor may be a better alternative for capacity improvements to relieve other congested corridors. Specifically, the expected severe congestion on West Union Road between 185th Avenue and Laidlaw Road, as well as the high forecasted volume on Laidlaw Road connecting to Bethany Boulevard could be served by higher capacity service on Springville Road. The trade-offs between these two routes merit further study.

An Off-Site issue of particular note:

- Germantown Road – the existing section parallel to the Concept Plan area is expected to carry significantly higher volumes than observed today. Given the low intensity of uses along the road, the operational bottlenecks are expected to occur at the intersections with Kaiser Road, Skyline Road, and 185th Avenue during peak hours. Further study is required to address the scale and nature of any intersection improvements and traffic control measures at those locations.

Preliminary Facility Needs On-Site

The street facility needs on-site were compiled to illustrate the differences in the on-site street concepts. This includes all the new arterial and collector streets, and any improvements to existing county facilities that run along the frontage (e.g., Springville Road) or intersect the plan area (e.g., Kaiser Road). The off-site roadway improvement are not included, but will be addressed at a later date. Also not included in this analysis are the local streets within the Concept Plan.

The street network summaries are listed in Tables 10, 11 and 12 for each of the Concept Plans. The totals range from 38,000 to 48,000 linear feet of new or improved major roadways within the site. The highest case was for the Ridge Park streets, which include the larger oval road around the central community park, and a Park Block style of roadway connecting to the school site on the east end. The number of bridge crossings varied from 4 to 6 on collector and arterial streets.

Table 7: Perimeter Streets Network On-site Summary

Street Name	Functional Class	Length of Roadway (feet)	Number of Bridges
Road "A"	3-Lane Arterial	8,600	1
Springville Rd (east of Arbor Oaks)	3-Lane Arterial	6,100	0
Kaiser Road	3-Lane Arterial	4,400	2
Road "B"	2-lane Collector	7,600	0
Road "D"	2-lane Collector	3,500	0
Road "E"	2-lane Collector	5,400	1
Road "G"	2-lane Collector	2,300	1
Other			1
Subtotal		37,900	6

Table 8: Parallel Streets Network On-site Summary

Street Name	Functional Class	Length of Roadway (feet)	Number of Bridges
Road "A"	3-Lane Arterial	8,600	0
Springville Road	3-Lane Arterial	6,100	0
Kaiser Road	3-Lane Arterial	4,400	2
Road "B"	2-lane Collector	8,000	0
Road "D"	2-lane Collector	3,200	0
Road "E"	2-lane Collector	4,500	1
Road "F"	2-lane Collector	2,900	1
Road "G"	2-lane Collector	2,300	1
Subtotal		40,000	6

Table 9: Ridge Park Streets Network On-site Summary

Street Name	Functional Class	Length of Roadway (feet)	Number of Bridges
Road "A"	3-Lane Arterial	8,700	0
Springville Road	3-Lane Arterial	5,800	0
Kaiser Road	3-Lane Arterial	4,400	2
Road "B"	2-lane Collector	5,600	0
Road "D"	2-lane Collector	2,900	0
Road "E"	2-lane Collector	2,100	1
Road "F"	2-lane Collector	4,000	0
Road "G"	2-lane Collector	2,300	1
Road "X"	2-lane Collector	6,300	0
Road "X" Parkway	2-lane Collector	6,000	0
	Subtotal	48,100	4

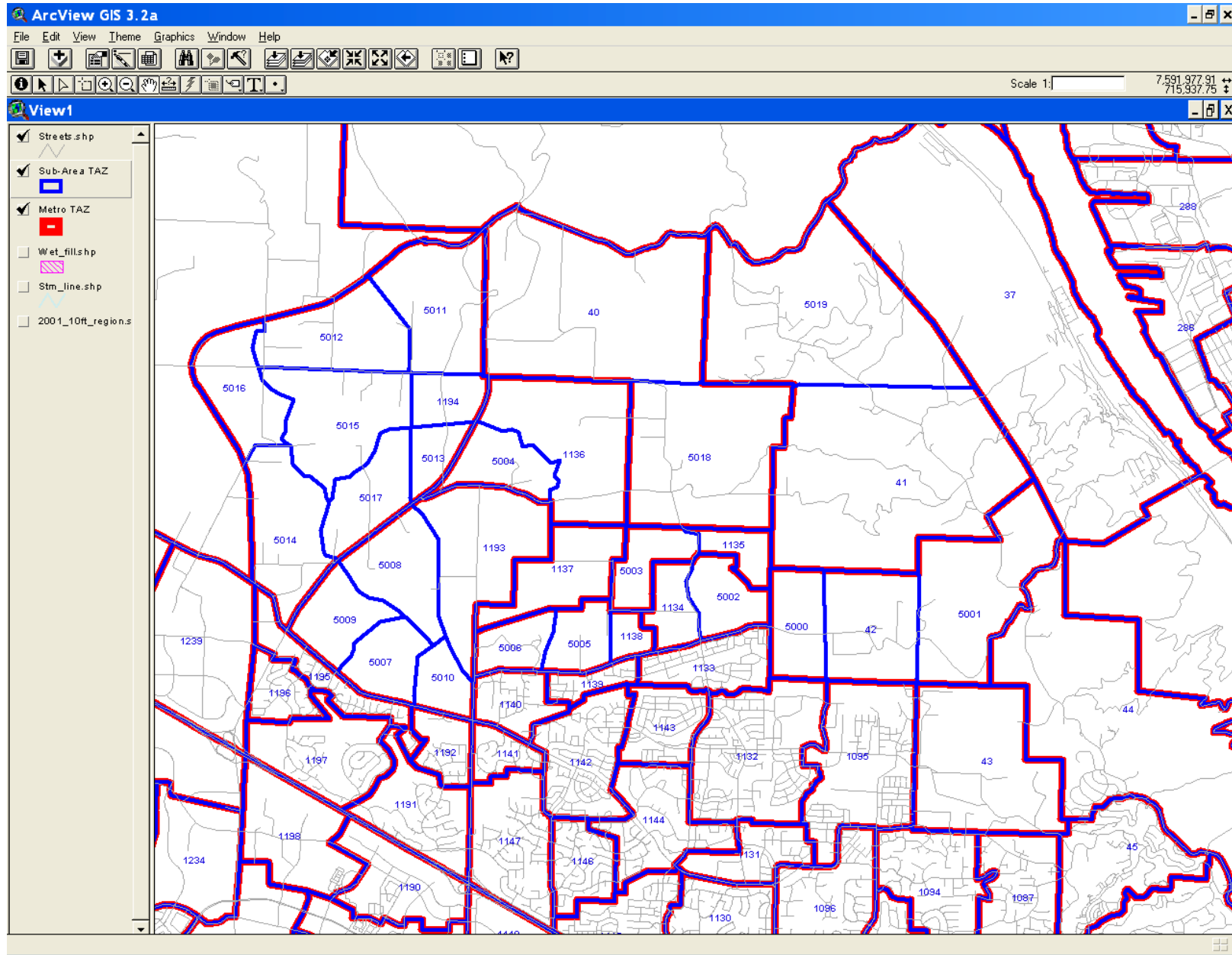
Summary of Findings

The previous results and discussions were summarized into a matrix that briefly describes how each plan complies with the evaluation criteria selected. The focus of these discussions is for facilities within the 800-acre site, to assist the team and community groups in selecting a preferred plan, or elements of plans the can move forward into a new hybrid plan.

Table 10: Summary of Initial Assessment

Criteria	Findings	Significant Issues
Volume-to-Capacity Ratio	The preliminary functional class plans and roadway sizing diagrams for this plan provides sufficient capacity to serve 2030 demand and full North Bethany Buildout within the plan area..	Without street connections to PCC campus, additional travel demands will occur on Road “E” and on Kaiser Road north of Springville. Additional local street connections may be considered to maintain livability where residential units front these streets. The new connection to Germantown Road (typically Road “D”) is useful to reduce demands on 185th Avenue and Kaiser Road near the North Bethany area. The north end of Kaiser Road fronts a planned elementary school, and reduced volumes are preferred.
Spacing	Preliminary plan conforms to Washington County access spacing standards and general street spacing guidelines.	Exception is Kaiser Road, where 600 foot minimum spacing is required. Many of the east-west local streets are shown with closer spacing. One option would be to downgrade Kaiser Road within the plan area to collector level, which allows for more closely spaced facilities. More pedestrian / bicycle crossings to greenway north of Springville Road required to comply with Metro standards. This would add costs for new bridges or culverts beyond the level shown above..
Environmental	Improvements to 185th Avenue along existing alignment to 3-lane arterial section with sidewalks and storm drainage will impact Rock Creek.	Re-alignment of 185th Avenue north of Springville Road reduces crossings length of Rock Creek waterways relative to existing alignment. This is more significant for the Greater Bethany provision of 5-lanes on 185th Avenue.

Figure 1: Refined Regional TAZ Map with Planning Area



Land Use Allocations for Regional Model TAZs

Greater Bethany Planning Area

2005 Base

TAZ	HH	Retail	Non-Retail
40	72	2	53
41	49	6	49
42	77	0	13
43	92	0	33
1136	42	0	6
1193	23	1	4
TOTALS	355	9	158

Scenario1 2030

TAZ	HH	Retail	Service	Other
40	101	3	19	50
41	297	9	77	26
42	103	0	3	13
43	549	0	58	6
1136	48	0	9	2
1193	26	1	6	6
TOTALS	1124	13	172	103

Scenario2 2030

TAZ	HH	Retail	Service	Other
40	1337	2	11	42
41	1254	6	32	17
42	3229	0	2	11
43	1294	0	28	5
1136	442	0	4	2
1193	7621	1	2	3
TOTALS	15177	9	79	80

North Bethany Concept Plan Area

2005 Base

TAZ	HH	Retail	Non-Retail
1134	32	0	25
1135	0	0	1
1137	27	0	0
1138	11	0	350
TOTALS	70	0	376

Scenario1 2030

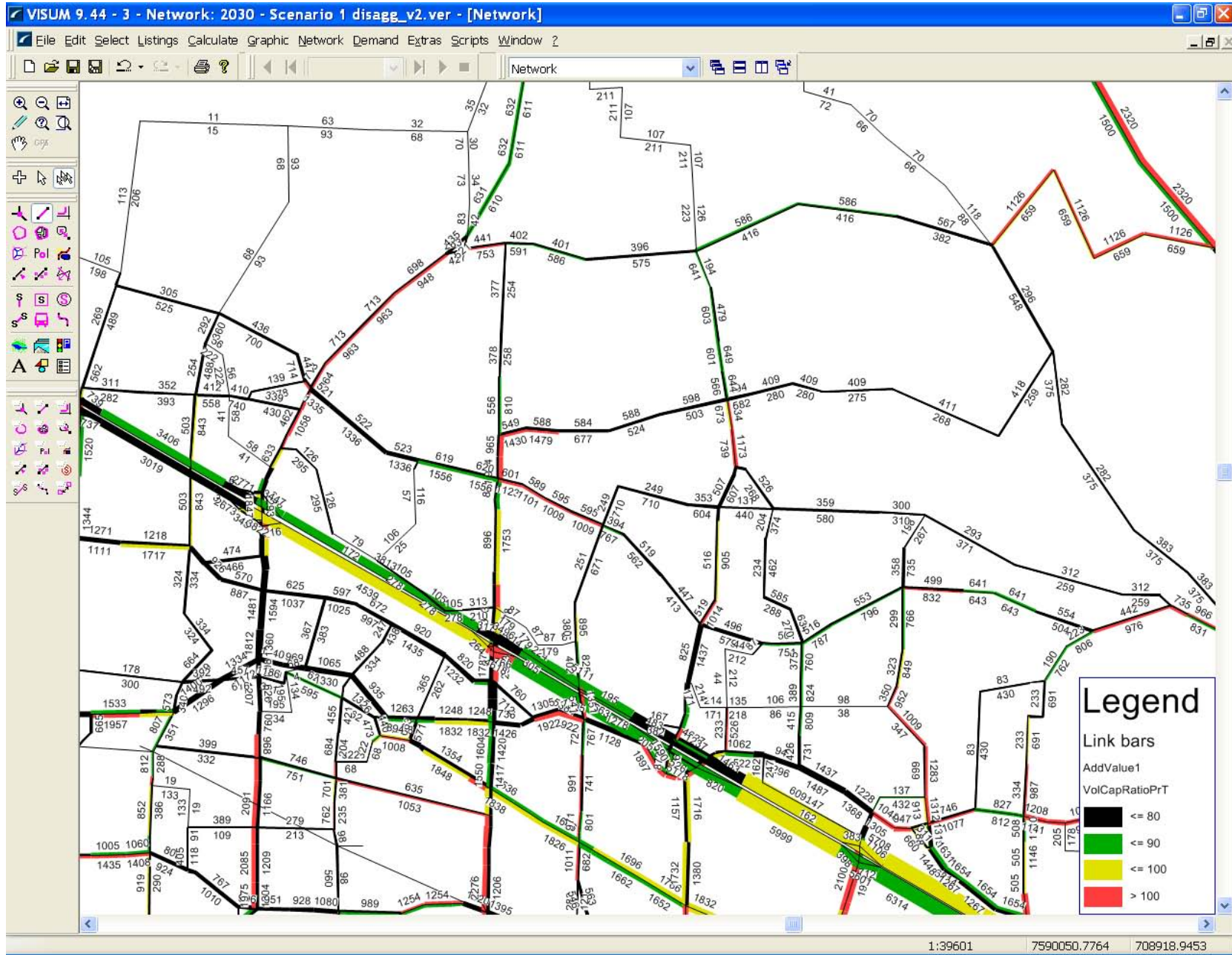
TAZ	HH	Retail	Service	Other
1134	1618	30	0	10
1135	1314	30	60	30
1137	1328	0	0	0
1138	815	0	883	10
TOTALS	5074	60	943	50

Scenario2 2030

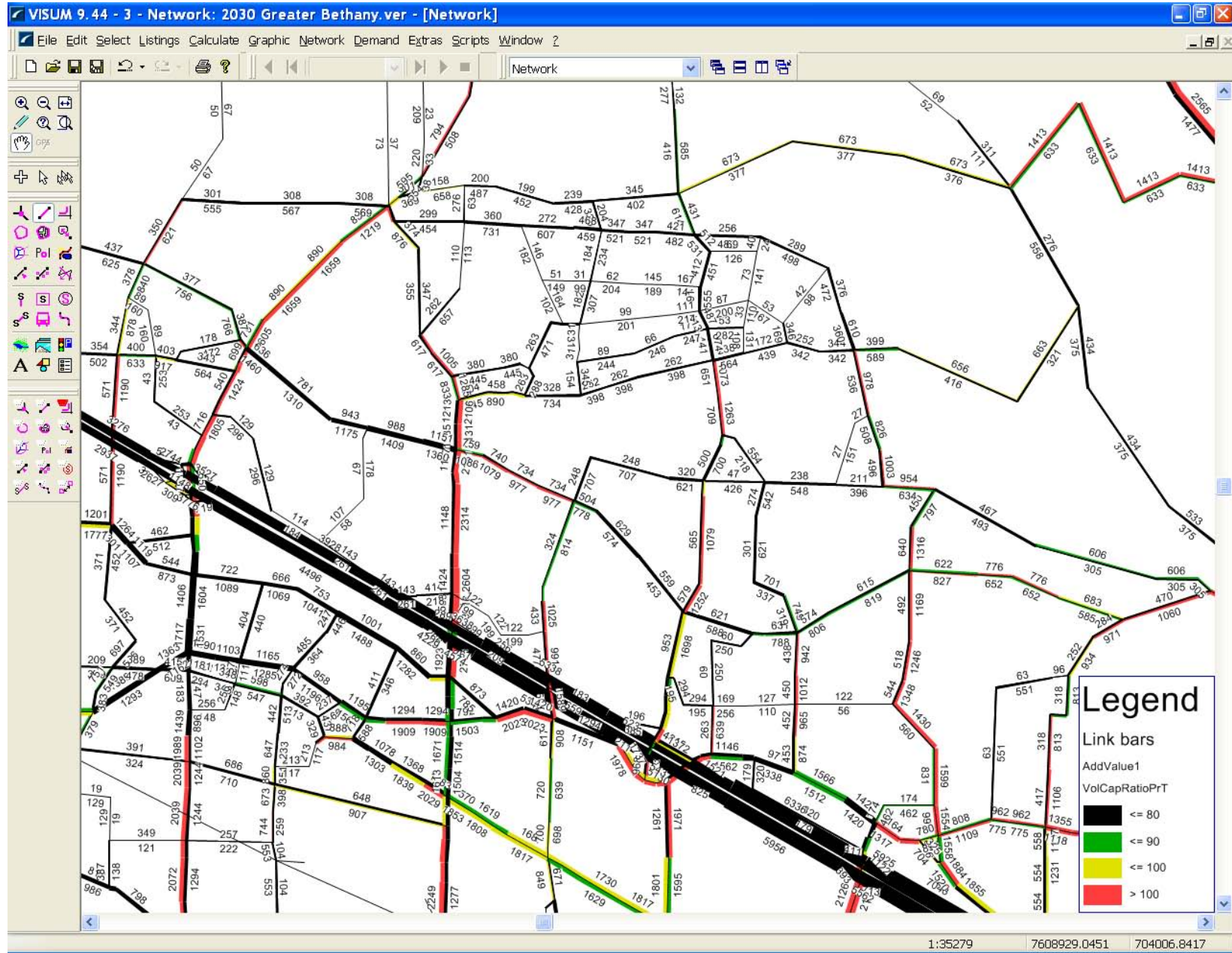
TAZ	HH	Retail	Service	Other
1134	1618	30	0	10
1135	1314	30	60	30
1137	1328	0	0	0
1138	815	0	883	10
TOTALS	5074	60	943	50

HH = Households

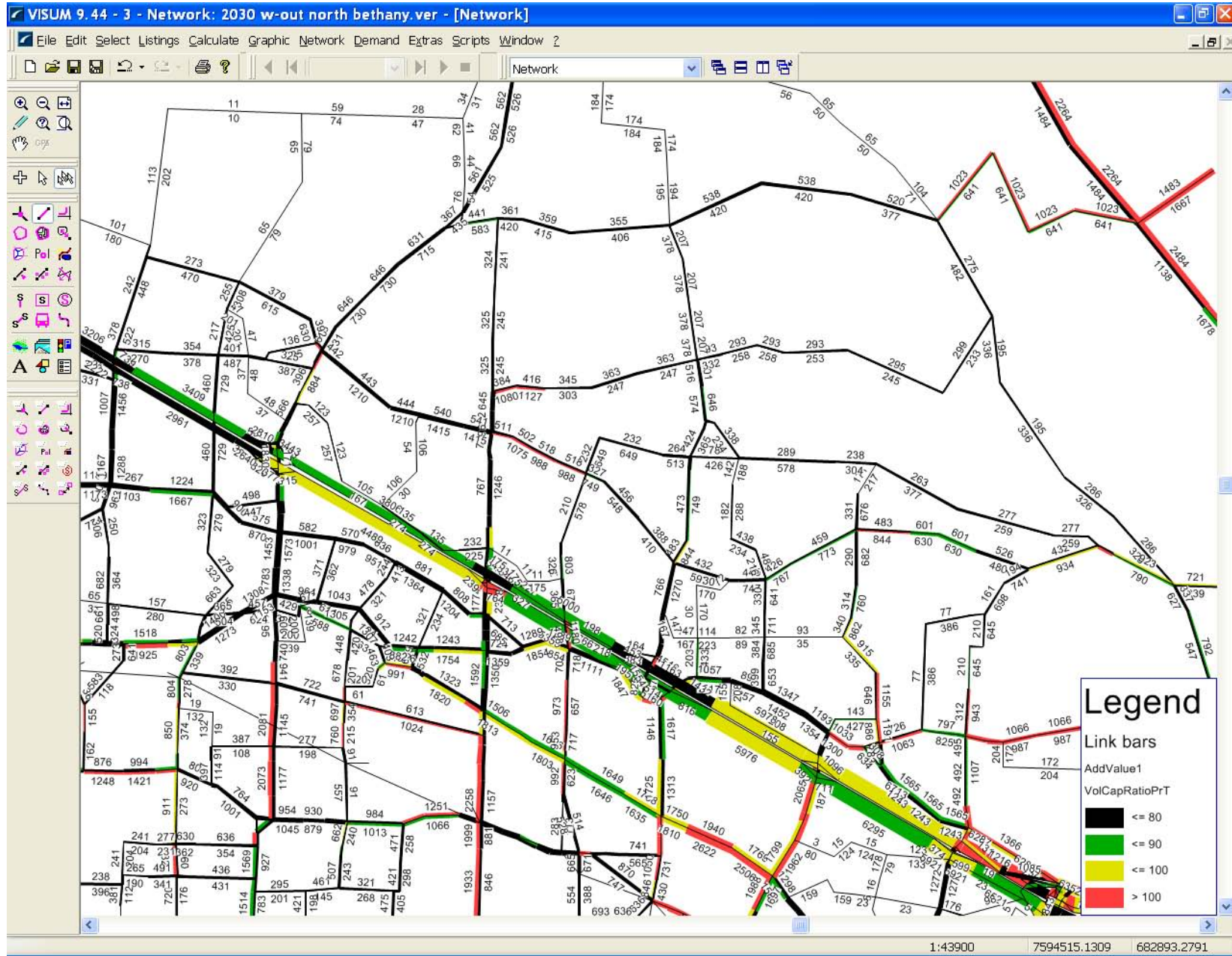
TAZ land use allocations totals reflect original Metro model TAZ boundary totals. The values in this table include the small TAZs (labeled as 5000 series on Figure 1) developed for the North Bethany area within the parent regional TAZ.



2030 North Bethany – No Internal Network



2030 North Bethany – Greater Concept Area



2030 Without North Bethany

