

84TH STREET NE CORRIDOR IMPLEMENTATION ACTION PLAN



March 2022



SNOHOMISH COUNTY TRAFFIC OPERATIONS

84TH STREET NE CORRIDOR IMPLEMENTATION ACTION PLAN

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OVERVIEW

The Snohomish County Department of Public Works' (DPW) has a key strategic planning goal to apply a systemic and proactive approach to safety to ensure safe travel for all users in the county road system. The DPW is dedicated to developing and maintaining safety-oriented strategies to reduce the total number of collisions with special emphasis on serious and fatal injuries, and to reduce pedestrian and bicycle related collisions. To implement its strategic plan goal, DPW conducted a comprehensive systemic safety study on the 84th Street NE corridor from SR 9 to SR 92. It was a data-driven study that used collision trends, traffic volume, speed data and contextual road data to identify the characteristics that lead to a higher risk of collisions. The study provides proven approaches for the remediation of those conditions and the severity of those collisions. This study also provides a list of improvements for short, medium, and long-term to take care of current and future safety needs in the corridor.

This strategic implementation action plan document is setting a long-term goal for the corridor and laying out improvements and strategies that will help to achieve that goal. This document also summarizes actions/projects or improvements (short, medium, and long-term) recommended in the corridor safety study and provides a path forward for implementation of viable actions and projects along the corridor. This document will also refine the actions/projects that would be most appropriate, constructible, and beneficial to the local communities, and also address how these actions/projects will be funded.

Long-Term Goal for the Corridor

The 84th Street NE/Getchell Road corridor between SR 9 to SR 92 is a major East-West connection, serving high volumes of passenger vehicles and freight traffic, travelling above the posted speed of 50 mph. According to Washington State freight data, the 84th Street NE corridor falls under the second highest freight category for its straight alignment and no impedance or slowdowns. This corridor is one of two routes available for travel between the Granite Falls area and SR 9. Because SR 92, the alternative route to 84th Street, has several roundabouts along it, 84th Street may be the preferred alternative for some vehicles. The straight route with no impedance or slowdowns is likely part of the reason we see increased traffic at higher speeds along the 84th Street corridor. From the corridor

safety study, it was identified that speeding in the corridor with high truck traffic and many driveways is the leading cause of the high number of accidents and fatal and serious injury collisions. It was also identified that reducing the speed in the corridor will reduce the total number and severity of crashes and improve overall safety in the corridor. So, for the long-term, a recommended strategic improvement in the corridor is to install roundabouts at major intersections, since they have the highest potential to reduce collisions, manage speeds and provide safer overall mobility. Selection of roundabout locations and their spacing is critical in providing necessary access from the driveways and intersections along the corridor. Based on current traffic and collision data and recommendations from the corridor safety study, the following key intersections would be potential roundabout locations: 99th Ave NE, 105th Ave NE, 115th Ave NE, 123rd Ave NE, 147th Ave NE and 163rd Ave NE.

This solution was ***Project Recommendation #1 on the list of possible Long-Term Projects (see pages 18,19) from the December 2019 84th Street NE Safety Study.***



Sample Roundabout intersection, a Long-Term project for the corridor.

As part of this strategy, DPW has two roundabout projects that are currently moving forward with design and construction, funded by Federal Safety Grants with applicable local match. They are located at 123rd Ave NE and 163rd Ave NE intersections. DPW will prioritize and seek future funding opportunities for other intersections along the corridor as opportunities are identified.

Medium-Term Improvements along the Corridor

As roundabouts are the recommended long-term and ultimate improvement along the corridor, and will require a major funding commitment, resource allocation and processing time, the DPW will implement improvements that are relatively less expensive but will set the stage for future ultimate improvements while also minimizing throwaway elements during the transition to long-term improvements. Medium-term improvements could include, but are not limited to the following:

- Left turn lanes to separate turning vehicles from thru vehicles at critical intersections at 105th Ave NE, 131st Ave NE, 143rd Ave NE and 147th Ave NE.
- Preserve/acquire right of way (ROW) for future improvements to reduce overall future project cost at critical intersections.
- Implement limited access between the roundabouts through hard channelization or creating U-turns if appropriate.

Left turn lane was ***Project Recommendation #3 on the list of possible Medium-Term Project (see pages 18,19) from the December 2019 84th Street NE Safety Study.***

Recommended Immediate/Near-Term Solutions/Projects

As the ultimate long-term, and medium-term improvements are costly and time-consuming projects, DPW is committed to allocating its resources to deliver immediate responses in the corridor to ensure safety in the near-term. The following is a general summary of the 84th street corridor proposed short term improvements. We recently received HSIP grant funding for some of the improvements. This report is intended to present a high-level overview of several short-term improvements suggested by the corridor safety study as well as the Traffic Operations team. As this project is already funded by HSIP grant funding, moving forward with the project preliminary engineering (PE) package will enable project details to be finalized.

We also recommend the corridor to be broken into three segments based on their driveway density, traffic volume and travel speed such as:

- Segment 1: SR 9 to 99th Ave NE, see attached Map 1
- Segment 2: 99 Ave to 147th Ave NE, see attached Map 2
- Segment 3: 147 Ave to 163rd Ave NE, see attached Map 3

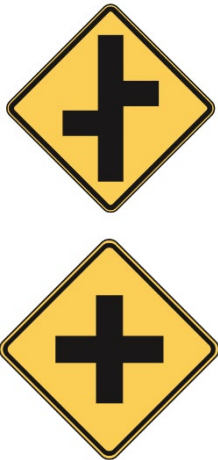
The 84th Street NE corridor safety study also broke the corridor into similar segments, their primary focus was collisions. We looked at existing striping, traffic signs, driveway approaches, lighting, public and private road intersections, passing/no passing zones, intersection and stopping sight distances while considering these break points. The following list of improvements are the short-term measures the Traffic Operations team would like to undertake for immediate safety improvements in the corridor.

Radar Feedback Speed Limit Signs: Installation of speed feedback signs at strategic locations along the corridor will alert drivers when they are speeding and will give positive feedback when they are driving within the limits. There are 6 potential locations along the corridor that can have key safety benefits from this sign. These signs should be programmable for future speed zoning options, and capable of collecting wireless traffic data. Also, the sign positions may need additional roadside improvements to accommodate servicing. The attached Maps show approximate locations of these signs, but the HSIP grant funded project PE will verify exact locations and numbers.



This was Project Recommendation #1 (see pages 28, 29) from the December 2019, 84th Street NE Corridor Safety Study.

Intersection Ahead Warning Signs: To increase driver awareness and warn of intersections and driveways ahead to minimize possible risk of conflicts. There are 14 potential locations along the corridor that need to have new signs. Not all the public side roads have a warning sign for each approach.



These additional signs will add uniformity to the route. **Project Recommendation #1 (see pages 28, 29) from the December 2019, 84th Street NE Corridor Safety Study.**

Flashing Traffic Stopped Ahead Warning Sign: Install “Prepare to Stop When Flashing” signs at the approach to multiple locations on the corridor.



With a flashing beacon this sign will warn approaching traffic when a vehicle up ahead is stopped in - lane to make a left turn. There are 8 potential locations along the corridor that will have positive safety benefits from this sign. Please see attached Maps for approximate locations of these signs.

This countermeasure is currently funded under a recent HSIP grant funding and the project PE will further investigate exact location and the number for these signs. This solution was identified as **Project Recommendation #3 on the list of possible Short Term Project Recommendations (see page**

31) from the December 2019, 84th Street NE Corridor Safety Study.

Flashing Signal Ahead Warning Signs: Install “Prepare to Stop When Flashing” signs at the approach to a couple of signalized intersections along the corridor.

Installation of the signs will provide additional safety benefits to potential locations along the corridor. These signs will go into flashing mode to alert approaching traffic that the traffic signal ahead is nearing the yellow interval. One sign will be placed on each approach to the intersection of 99th Ave NE and the Centennial Trail crossing signals. Please see attached Map 1 and 2 for approximate locations. The actual number of signs may vary during the project PE and field verifications. This countermeasure is currently funded under a recent HSIP grant funding and the project PE will further investigate the exact locations for those signs. This solution was identified as **Project Recommendation #3 on the list of possible Short**

Term Project Recommendations (see page 31) from the December 2019, 84th Street NE Corridor Safety Study.

Up-Grade Street Name Signs: Up-grade all existing white on green street names signs to 9” characters. (public and private roads).

Narrowing Travel Lanes: The straight route with wide travel lanes along the 84th Street NE corridor causes an increased tendency to drive fast. Narrowing the travel lanes to 11 feet and creating wider center stripes and/or a wider directional buffer in the middle and wider edge striping will encourage drivers to travel at a lower speed in the corridor. The intent of this re-stripe is to narrow travel lanes, widen the buffer in the middle and create wider shoulders as appropriate in the corridor.

Edge Line Striping: To reduce the width of the travel lanes in both directions, the existing 4” edge line can be widened to 8” by laying in a new 4” line along the travel way. In conjunction with widening the center line, this effort will help reduce the overall width of the lanes of travel.

Center Line Striping:



A standard center line stripe is two 4" wide yellow solid or broken lines having 4" gap in between. Widening the gap between the yellow lines to 12" would reduce the travel lanes width by 4" in each direction. The 84th Street NE corridor safety study only recommended reducing the lane widths on the shoulder side to create wider shoulders for enforcement. However, the Traffic Operations Team would like to evaluate further the option of a wider median buffer for increased separation of two directional traffic, possibly with rumble strips to minimize risk of head-on collisions. Another alternative is to use wider centerline stripes, also creating a wider, more visible buffer. This wider median buffer will have very little impact on the width of the shoulders. Even though wide shoulders are absent along much of the corridor, with a 10 mph reduction in speed limit, officers may be more willing to use the existing narrow shoulders for enforcement. Options for lane narrowing and shoulder width enhancement for this and for non-motorized use will be evaluated further in the final selection of improvements.

Passing/No-Passing Zone Striping: The 84th St NE corridor also needed a complete evaluation of the passing zones. Passing is allowed at several sections but should be discouraged considering the speed and volume of traffic. A modification to the passing zones will affect segments of center line striping. Also, widening the gap between the center line stripes to 12" will further reduce the width of the travel lane in both directions.

Segments of Marine Drive and the Old Snohomish Monroe Road have this treatment. Hydro-blasting is the preferred method for removal of existing center lines. Consideration should be given to installing a plastic, profiled, center line as a means to alert motorists should they drift out of their lane. Also, a plastic centerline is considered much more durable than standard highway paint. Reflective, raised pavement markers, at 40' intervals, should be used to supplement the striping. **Project Recommendation #2 (see page 30) from the December 2019, 84th Street NE Corridor Safety Study.**

Street Lighting: Street lighting along the corridor will improve nighttime visibility and provide positive guidance. Some parts of the corridor have existing lighting, and some don't. Lighting the full length of the corridor will provide uniformity. This improvement requires further investigation and lighting analysis. Continuous lighting along the corridor could be expensive and may not be warranted for the full length in the near term. This measure can be broken down into segments and first implemented where there is higher activity and more frequent access.

Intersection/Stopping Sight Distance: Except for the intersections of 147th Ave NE and Fir Tree Lane Road, both elements of sight distance exceed the minimum standard. For the intersection of 99th Ave NE, the traffic signal equipment on the NE corner limits visibility looking to the east and is compounded by the vertical profile of 84th Street NE, east and west of 99th Ave NE. This vertical curve also potentially limits the visibility of westbound traffic to see a queue of stopped vehicles waiting to make a left turn at the Westlund Road intersection. Analyzing this vertical profile will help to provide guidance for an advisory speed or for a further potential speed limit reduction to begin just east of 99th Ave NE and proceed west to Hwy 9. Staking the ROW along the corridor will help maintenance crews to manage the line of sight for all access points onto this road.

Reduced Posted Speed Limits: – With the above list of improvements, revised posted speed limits along the corridor would provide significant safety benefits. The current posted speed limit in the corridor is 50 mph and, per County Code 11.16.070, the County Engineer has the authority to reduce the speed limit of any county road up to 10 mph based on engineering studies, any changes above 10 mph would need County Council approval. The 84th Street NE corridor safety study recommends the posted speed in the corridor to be 40 mph based on speed studies. We are recommending the posted speed limit in the corridor be reduced to 40 mph. Also, the proposed roundabouts at 163rd Ave NE and 123rd Ave NE will provide significant benefits to implement this strategy. This was ***Project Recommendation #1 (see pages 28, 29) from the December 2019, 84th Street NE Corridor Safety Study.***

Up-Size Speed Limit Signage: To improve visibility and driver awareness, upsizing all existing speed limit signs and installing a few additional signs will increase awareness of the posted speed in the corridor. All intersecting side roads have a different speed limits, but the speed change after entering 84th Street NE is not always indicated. The HSIP project funded this improvement, but the project PE will provide details for new sign locations as well as existing signs in the corridor. This is not a recommendation from the study but upsizing the speed limit signs with speed limit changes in the corridor would be most effective.

Recommendation

Based on our thorough review of the 84th Street NE corridor safety study, field review of existing conditions and traffic and accident data, we recommend the above-mentioned near-term solutions to be implemented as soon as possible to take care of immediate safety needs in the corridor.

Things to Consider

The above near-term solutions are low-cost improvements and can be implemented fairly quickly to address the safety concerns in the corridor and is consistent with the recommendations of the 84th Street NE Safety Study, December 2019. As these improvements are unique, separate work elements, some would require separate staff or consultants/contractors to do design and construction. DPW is capable of both design and construction of most of the improvements and can implement more improvements if there are more available resources within DPW. The Transportation and Environmental Service (TES) Division will work with the Road Maintenance Division to identify measures that can be implemented with the County Forces. Other items would need to be in a formal bidding process. Last year we received \$650,000 from HSIP grant funding to implement some of the improvements listed above. The HSIP grant also provides funding flexibility to make strategic improvements from the recommendations of the study. To implement the corridor safety study, we have developed the detailed list of improvements as recommended in this document. Next steps are to determine their estimated cost, funding sources, and how they would be implemented (By using County Forces or through a competitive bidding process).

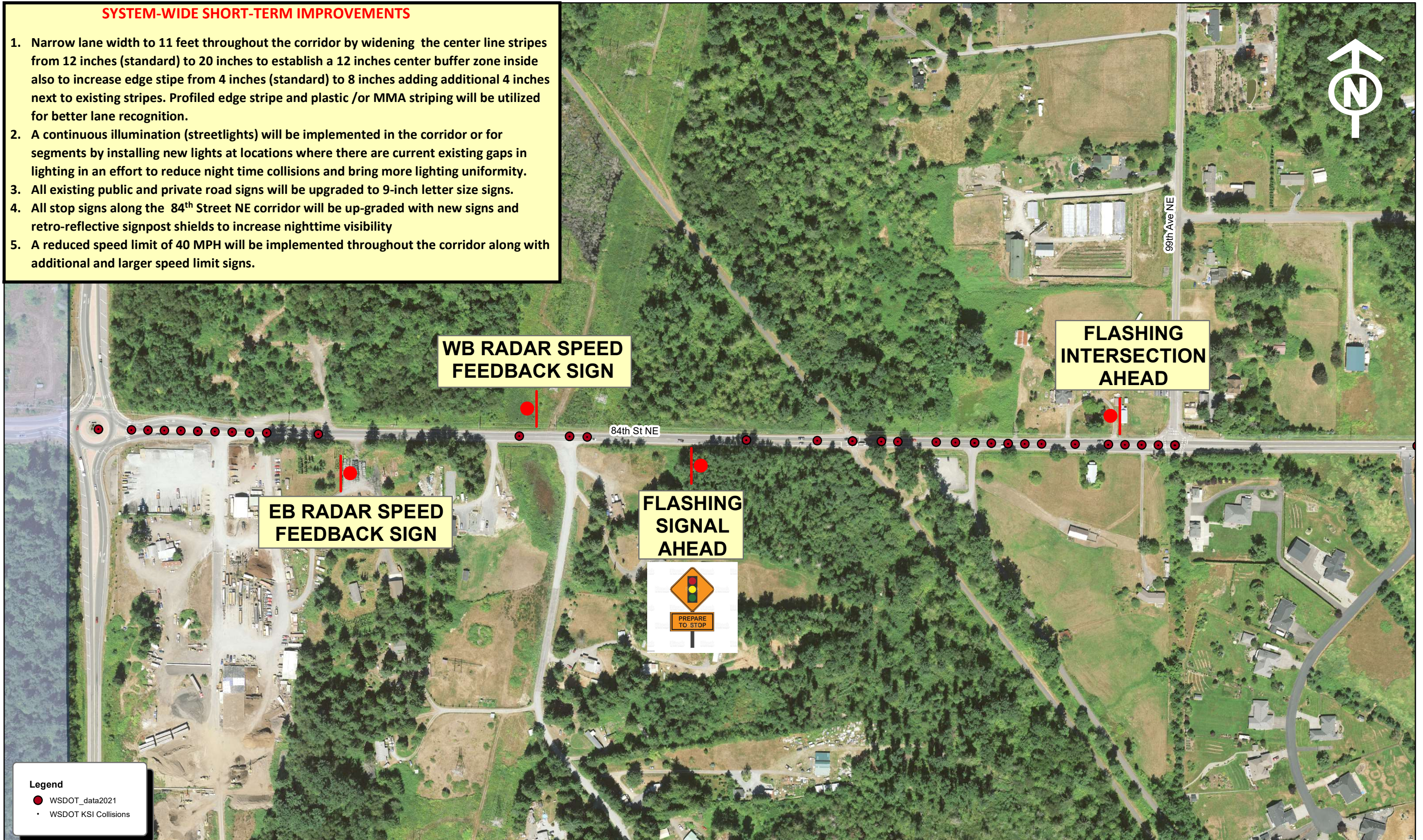
84th Street NE Corridor Short-Term Improvemnet List

COUNTER MEASURES	QUANTITY	LOCATIONS	UNIT COST	TOTAL COST	UNIT COST	TOTAL COST	DESIGN NEEDED	DESIGNED BY	CONSTRUCTION
			(Contractor)		(County Force)				
<i>RADAR SPEED FEEDBACK LIMIT SIGNS</i>	6	Varies	\$15,000.00	\$90,000	\$5,000.00	\$30,000	Yes	County/Contract	
<i>INTERSECTION AHEAD WARNING SIGNS</i>	14	Varies	\$300.00	\$4,200	\$150.00	\$2,100	Yes	County/Contract	
<i>FLASHING TRAFFIC STOPPED AHEAD WARNING SIGN</i>	8	Varies	\$25,000.00	\$200,000	\$25,000.00	\$200,000	Yes	Contract	
<i>FLASHING SIGNAL AHEAD WARNING SIGNS</i>	4	Varies	\$25,000.00	\$100,000	\$25,000.00	\$100,000	Yes	Contract	
<i>UPGRADE STREET NAME SIGNS</i>	21	Varies	\$300.00	\$6,300	\$150.00	\$3,150	Yes	County	
<i>REFLECTORIZED SIGN POSTS</i>	21	Varies	\$100.00	\$2,100	\$100.00	\$2,100	Yes	County	
<i>NARROWING TRAVEL LANES (Edge, Center Line and Passing Zone Striping)</i>	(4.72 MI x 4 edges, total=18.88 mi. 99,686 FEET @\$1.50)	Entire Length	\$1.50	\$149,529	\$0.75	\$74,765	Yes	Contract	
<i>STREET LIGHTING***</i>	VARIOUS LOCATIONS	Filling Gaps	LS	\$50,000	LS	\$50,000	Yes	County	PUD
<i>UPSIZE SPEED LIMIT SIGNING & REDUCE POSTED SPEED</i>	10	Varies	\$300.00	\$3,000		\$1,500	Yes,	County	
SUB TOTAL				\$605,129		\$463,615			
30% PE AND DESIGN					\$181,539	\$124,000			
GRAND TOTAL					\$786,668	\$587,615			

*** Lighting analysis will identify the number of new poles would be needed (most of them would be on PUD poles)

SYSTEM-WIDE SHORT-TERM IMPROVEMENTS

1. Narrow lane width to 11 feet throughout the corridor by widening the center line stripes from 12 inches (standard) to 20 inches to establish a 12 inches center buffer zone inside also to increase edge stipe from 4 inches (standard) to 8 inches adding additional 4 inches next to existing stripes. Profiled edge stripe and plastic /or MMA striping will be utilized for better lane recognition.
2. A continuous illumination (streetlights) will be implemented in the corridor or for segments by installing new lights at locations where there are current existing gaps in lighting in an effort to reduce night time collisions and bring more lighting uniformity.
3. All existing public and private road signs will be upgraded to 9-inch letter size signs.
4. All stop signs along the 84th Street NE corridor will be up-graded with new signs and retro-reflective signpost shields to increase nighttime visibility
5. A reduced speed limit of 40 MPH will be implemented throughout the corridor along with additional and larger speed limit signs.



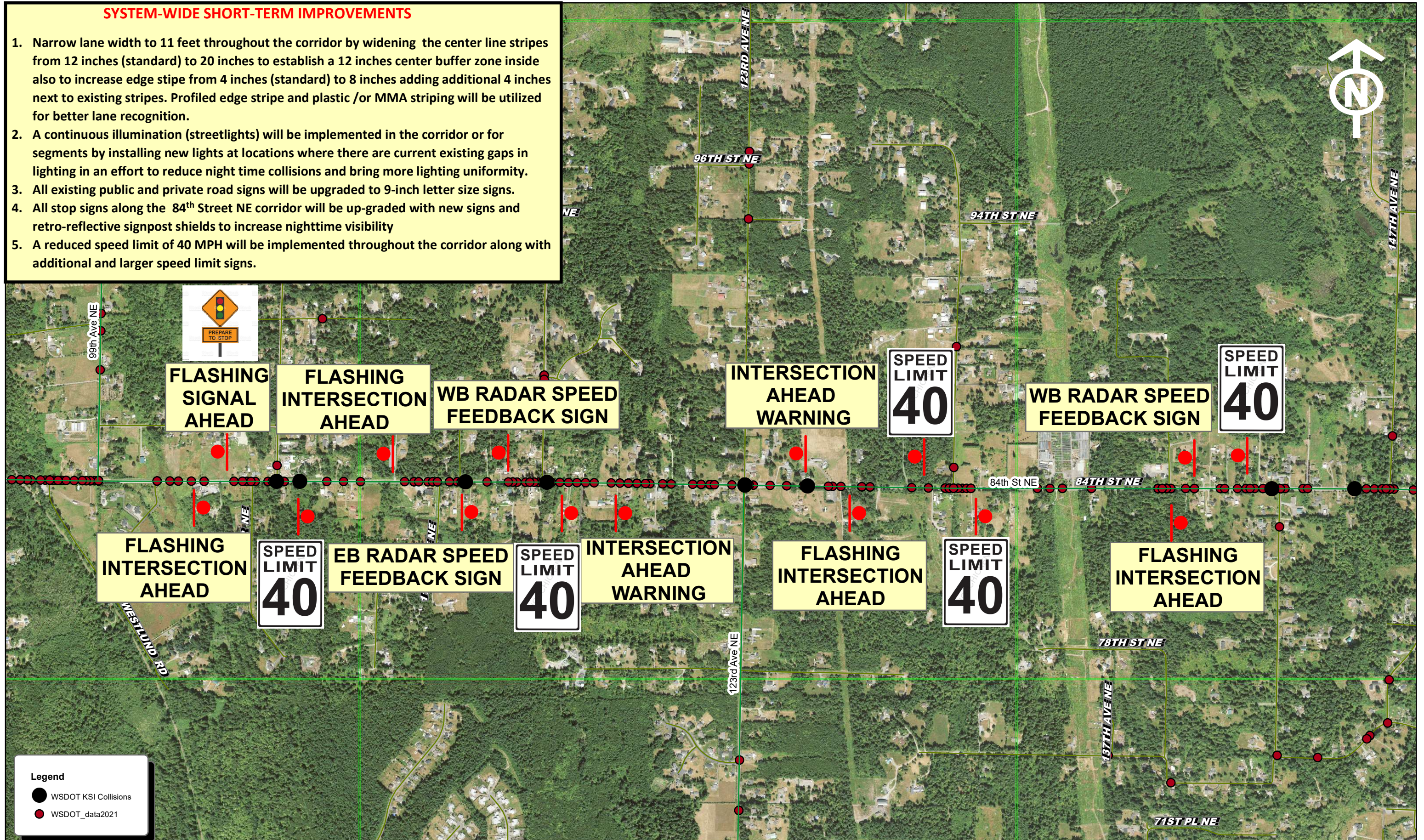
84TH STREET NE SHORT TERM SAFETY IMPROVEMENTS - SR 9 TO 99TH AVE NE

Snohomish County Public Works - Traffic Operations



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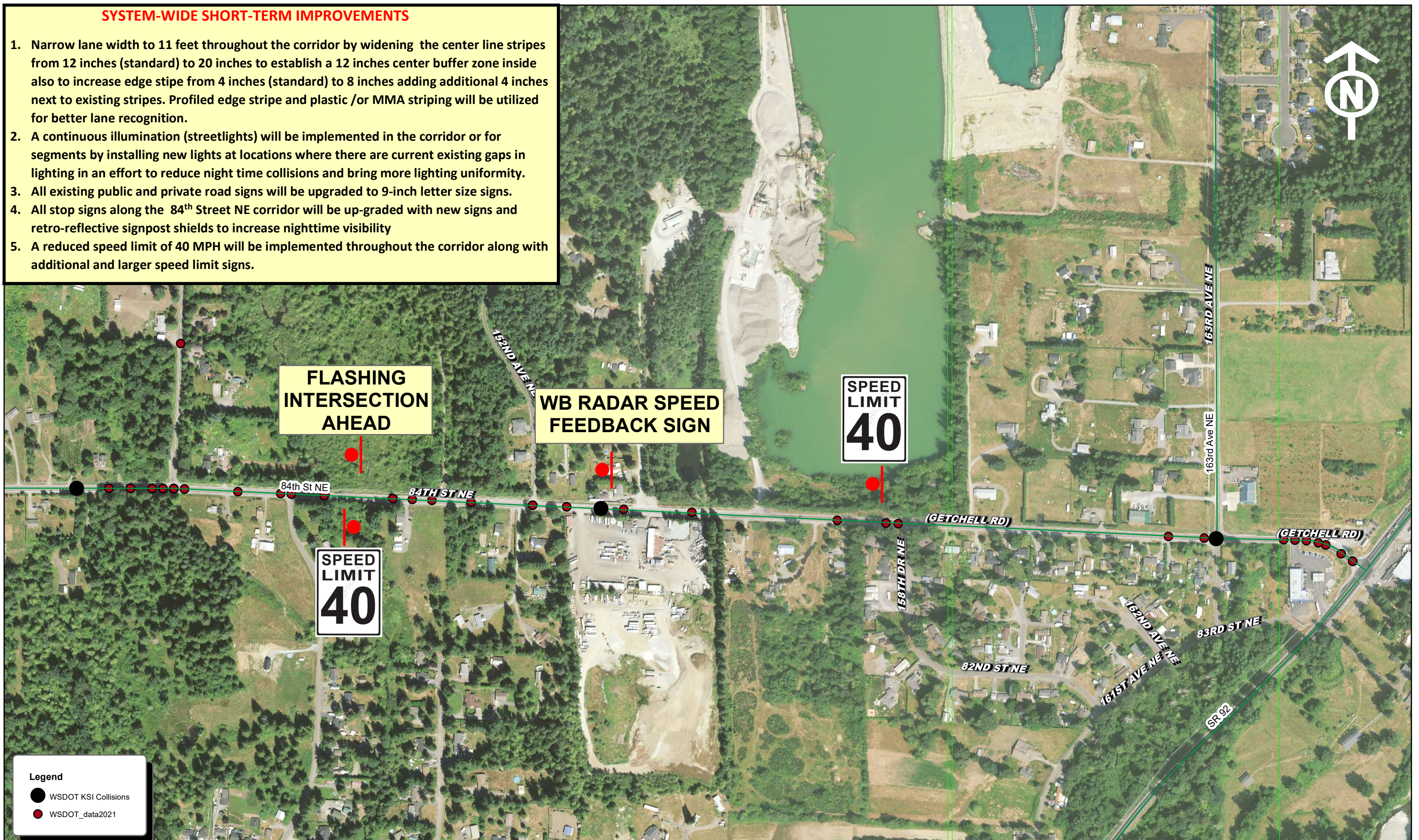


84TH STREET NE SAFETY IMPROVEMENTS - 99TH AVE NE TO 147TH AVE NE



SYSTEM-WIDE SHORT-TERM IMPROVEMENTS

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84TH STREET NE SAFETY IMPROVEMENTS - 147TH AVE NE TO SR 92

