Four interchange design concepts were studied in a second level of evaluation, to assist in the selection of a preferred alternative for the US 6 and Wadsworth Boulevard interchange. The design concepts were rated as "good," "fair," or "poor" on 20 criteria related to design and safety features, mobility and traffic operations, local impacts, environmental impacts, costs, and implementation elements.

Some of the criteria weighed more heavily in the selection of a preferred alternative than others. For example, improving safety is a high priority, and criteria related to safety were therefore considered high priority. The four interchange concepts performed similarly on many of the criteria, including some of the highest priority criteria. The comparable performance of the concepts did not immediately indicate a clear preferred alternative for the interchange.

To better differentiate the design concepts from one other, the project team determined which criteria were the primary means of differentiating the concepts, and of those, which were the highest priority, based on the purpose and need of the project and the opinions voiced by the public at the February 2008 public meeting. The highest priority distinguishing criteria were, in order of importance: interchange capacity, pedestrian and bicycle crossings, corridor travel time, and cost. For these criteria, the concepts were compared to one another, with a rank of 1st through 4th place assigned to the concepts.

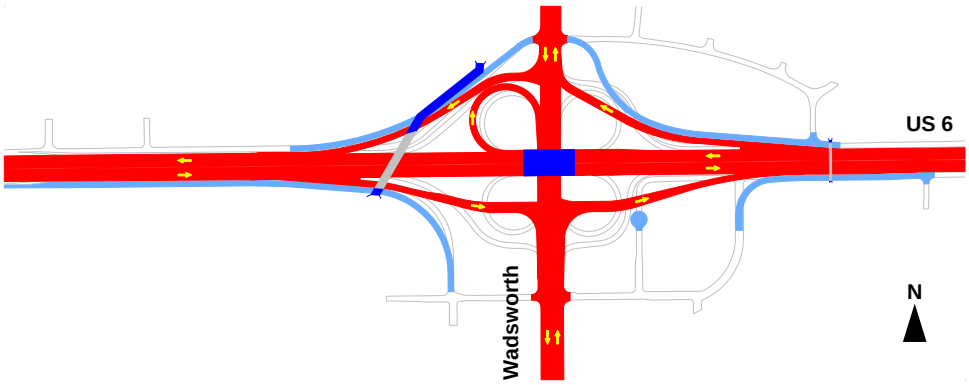
After detailed evaluation of the 20 criteria, including the distinguishing criteria, the Tight Diamond with Loop was determined to ***best balance*** transportation needs with environmental and community impacts. For example, the Tight Diamond with Loop performs second best on the highest priority criterion, interchange capacity, while requiring significantly fewer relocations than the Partial Cloverleaf concept, which ranked best on interchange capacity.

The results of the Level 2 evaluation led to the selection of the Tight Diamond with Loop as the preferred alternative for improvements to the US 6 and Wadsworth Boulevard interchange.

The detailed Level 2 evaluation matrix, showing the ratings of each interchange design concept in all 20 evaluation categories, is available for reference upon request. The following pages provide general information on the features of each of the four interchange design concepts considered.

Distinguishing Criteria	Alternative Ranking			
	Tight Diamond	*Tight Diamond with Loop*	*Single Point Urban Interchange (SPUI)*	*Partial Cloverleaf*
Interchange Capacity	4th	2nd	3rd	1st
Pedestrian and Bicycle Crossings	1st	3rd	2nd	4th
Corridor Travel Time	4th	2nd	1st	3rd
Project Cost	1st	2nd	3rd	4th

Tight Diamond with Loop – Preferred Alternative



Description

The Tight Diamond with Loop concept would provide a loop ramp for the highest volume left-turn movement from westbound US 6 to southbound Wadsworth Boulevard. Traffic making this movement would exit US 6 onto a loop ramp, as it does today. Placing the highest volume left-turn movement on a loop ramp would increase traffic capacity at other left-turn movements at the interchange, improving the operation of the entire interchange when compared to the Tight Diamond and SPUI concepts.

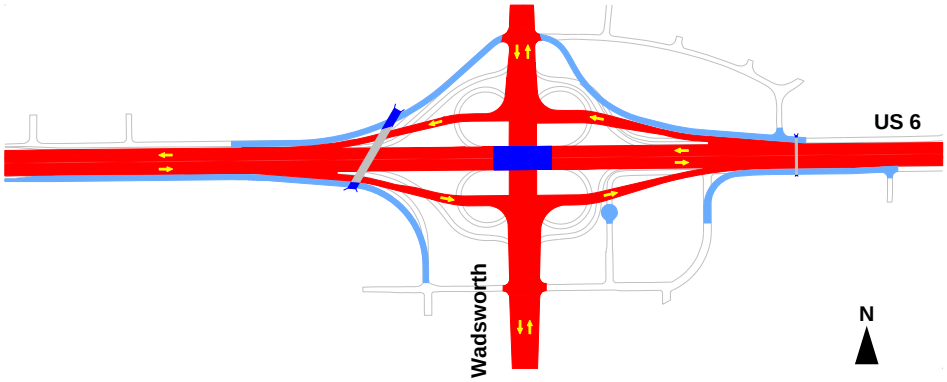
The eastbound ramps (on the south side of US 6) would be the same as the Tight Diamond, and would intersect Wadsworth at a traffic signal. The westbound ramp intersection (on the north side of US 6) would be shifted farther north than in the Tight Diamond, to allow for the placement of the loop ramp. The westbound ramp intersection would require a signal for southbound Wadsworth Boulevard traffic only; northbound traffic at this location would not require a signal.

The Tight Diamond with Loop would require fairly simple construction staging. It would cost more than the Tight Diamond concept due to the additional right-of-way acquisition required in the northwest quadrant of the interchange, but would cost less than the SPUI or Partial Cloverleaf.

Pedestrians and bicycles crossing through the interchange would cross the terminal of the loop ramp and two free-flow right-turn movements without the benefit of traffic signals. Loop ramp crossings present a greater safety concern than right-turn movements, because of the speed and sight lines of the vehicles on the loop ramp. Pedestrians and bicycles could cross Wadsworth Boulevard at the south ramp intersection, but not at the north ramp intersection.

The Tight Diamond with Loop would not easily accommodate expansion of Wadsworth Boulevard or US 6 in the future without reconstruction of the loop ramp and westbound entrance ramp. Constructing a loop ramp that would allow future expansion on Wadsworth Boulevard and US 6 would increase the already-large right-of-way impacts in the northwest quadrant of the interchange.

Tight Diamond



Description

The Tight Diamond interchange concept would provide four standard ramps between Wadsworth Boulevard and US 6. Two traffic signals would be added on Wadsworth Boulevard to allow left turns at the ramps. Right turns at the entrance ramps would be free movements; right turns at the exit ramps would be signalized.

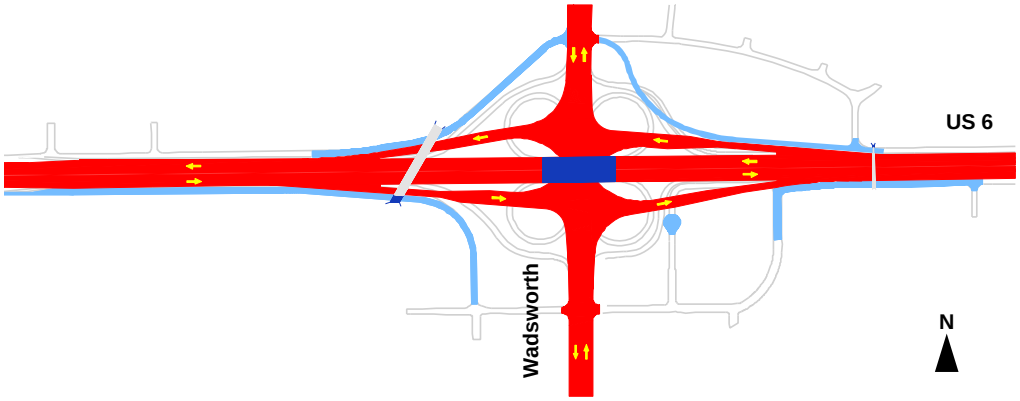
The Tight Diamond concept would address the highest volume left-turn movement from westbound US 6 to southbound Wadsworth Boulevard by providing three left-turn lanes on the westbound exit ramp. To address the limited vehicle storage area within the interchange, queuing of vehicles would be provided outside of the interchange. This would allow vehicles to wait for left turns outside of the ramp intersections on Wadsworth Boulevard.

The Tight Diamond would require more complex construction staging than the Tight Diamond with Loop and Partial Cloverleaf concepts, but would be easier to build than the Single Point Urban Interchange (SPUI) concept. The Tight Diamond would cost less than the other interchange concepts. It would minimize right-of-way acquisition compared to the Tight Diamond with Loop and Partial Cloverleaf concepts.

Most of the pedestrian and bicycle crossings at the interchange would occur at signalized intersections, except at two free-flow right-turn movements. Additionally, pedestrians and bicyclists could cross Wadsworth Boulevard at either or both intersections in the interchange.

The Tight Diamond would allow easier future expansion of Wadsworth Boulevard and US 6 than the Tight Diamond with Loop and Partial Cloverleaf concepts, because the entrance and exit ramps would not require major reconstruction to accommodate additional lanes on Wadsworth Boulevard or US 6. Reconstruction would be limited to the ramp intersections with Wadsworth Boulevard and the entrance/exit tapers on US 6.

Single Point Urban Interchange (SPUI)



Description

A Single Point Urban Interchange (SPUI) would provide four standard ramps that converge to a single intersection. The left-turn movements at all four ramps would be controlled by a single traffic signal. SPUIs typically operate better than tight diamond interchanges because there is only one traffic signal for vehicles to negotiate. However, the intersection is very large due to the geometry of the ramp movements.

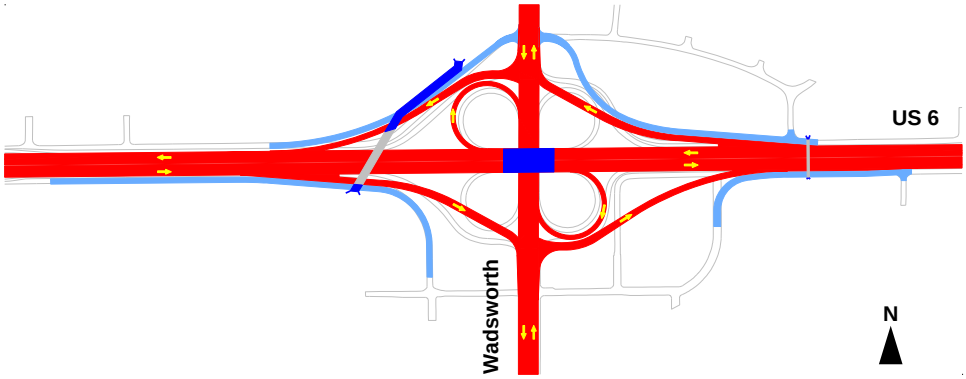
The SPUI concept would address the highest volume left-turn movement from westbound US 6 to southbound Wadsworth Boulevard by providing three left-turn lanes on the westbound exit ramp. Right turns at the ramps would be free-flow movements except in the southwest quadrant of the interchange. The right-turn movement in this quadrant would be signalized, allowing vehicles to travel across Wadsworth Boulevard to turn left onto 5th Avenue.

The SPUI concept would require the most difficult construction staging of the four interchange concepts, and would create significant disruption to traffic on US 6 and Wadsworth Boulevard for a longer period of time than the other concepts. The SPUI concept would cost more than the Tight Diamond and Tight Diamond with Loop concepts, due to the type of bridge required on US 6.

Most of the pedestrian and bicycle crossings at the interchange would occur at signalized intersections, except at free-flow right-turn movements. Pedestrians and bicyclists could not cross Wadsworth Boulevard at the interchange; they would travel south to the 5th Avenue intersection or north to the 10th Avenue intersection.

The SPUI would allow easier future expansion of Wadsworth Boulevard and US 6 than the Tight Diamond with Loop and Partial Cloverleaf concepts, because the entrance and exit ramps would not require major reconstruction to accommodate additional lanes on Wadsworth Boulevard or US 6. Reconstruction would be limited to the ramp intersections with Wadsworth Boulevard and the entrance/exit tapers on US 6.

Partial Cloverleaf



Description

The Partial Cloverleaf concept would provide loop ramps for two travel movements. The loop ramp in the northwest quadrant of the interchange would carry traffic at the highest volume left-turn movement from westbound US 6 to southbound Wadsworth Boulevard. The loop ramp in the southeast quadrant of the interchange would carry traffic from eastbound US 6 to northbound Wadsworth Boulevard. Traffic making these movements would exit US 6 onto loop ramps, as it does today. Placing two left-turn movements onto loop ramps would increase traffic capacity at other left-turn movements at the interchange, improving the operation of the entire interchange when compared to the Tight Diamond and SPUI concepts

The remaining ramps would be shifted farther away from US 6, to allow for placement of the loop ramps, increasing impacts to properties around the interchange. Two traffic signals would be added on Wadsworth Boulevard, one at each ramp intersection.

The Partial Cloverleaf would require the simplest construction staging of the four interchange concepts, causing the least disruption to the traveling public. The Partial Cloverleaf would cost more than the other interchange concepts, both because of the additional infrastructure required and the additional right-of-way acquisition required in the northwest and southeast quadrants of the interchange.

Pedestrians and bicycles crossing through the interchange would cross the terminals of the two loop ramps and two free-flow right-turn movements without the benefit of traffic signals. Loop ramp crossings present a greater safety concern than right-turn movements, because of the speed and sight lines of the vehicles on the loop ramp. Pedestrians and bicyclists could not cross Wadsworth Boulevard at the interchange; they would travel south to the 5th Avenue intersection or north to the 10th Avenue intersection.

The Partial Cloverleaf would not easily accommodate expansion of Wadsworth Boulevard or US 6 in the future without reconstruction of the loop ramps and entrance ramps. Constructing loop ramps that would allow future expansion on Wadsworth Boulevard and US 6 would increase the already-large right-of-way impacts in the northwest and southeast quadrants of the interchange.