

## Memorandum

**To:** Keith Woolley, City of Renton

**From:** Michael Lapham and John Davies, KPG

**Date:** January 3, 2018

**Re:** Traffic Analysis for the Williams Ave S and Wells Ave S Conversion Project – Addendum to the Downtown Traffic Circulation Analysis (2016)

As part of its vision to revitalize the downtown, the City of Renton has identified changing its one-way streets to two-way operations as a key component to improve circulation and encourage new economic investment in the downtown.

The Downtown Circulation Traffic Analysis documented the future 2025 and 2035 traffic operations with the conversion of the one-way couplets of Williams Avenue S/Wells Avenue S and S 2nd Street/S 3rd Street to two-way traffic. The City of Renton is moving forward first with the conversion of Williams Avenue S and Wells Avenue S to two-way operations. This memo serves as an addendum to the Downtown Circulation Traffic Analysis by analyzing conditions with two-way travel on Williams Avenue S and Wells Avenue S and the current one-way operations on S 2nd Street and S 3rd Street.

The City of Renton obtained a U.S. Department of Transportation Surface Transportation Program (STP) Grant for the two-way conversion of Wells Avenue S and Williams Avenue S between S Grady Way and N 1st Street. Primary components of this project will improve mobility and safety for all modes of travel, including new traffic signals, illumination, raised concrete intersections, ADA facilities, bicycle facilities, landscaping, and streetscape improvements.

### 2025 and 2035 Traffic Volumes

The Downtown Circulation Traffic Analysis developed 2025 and 2035 PM peak hour forecasts with the two-way conversions of Williams Avenue S/Wells Avenue S and S 2nd Street/S 3rd Street. This analysis revises these forecasts for the conversion of Williams Avenue S and Wells Avenue S to two way operation and keeping S 2nd Street and S 3rd Street as one-way facilities. The analysis includes 10 intersections along Williams Avenue S and Wells Avenue S.

- |                                   |                                |
|-----------------------------------|--------------------------------|
| 1. N 1st Street/Williams Avenue S | 2. N 1st Street/Wells Avenue S |
| 3. S 2nd Street/Williams Avenue S | 4. S 2nd Street/Wells Avenue S |
| 5. S 3rd Street/Williams Avenue S | 6. S 3rd Street/Wells Avenue S |
| 7. S 4th Street/Williams Avenue S | 8. S 4th Street/Wells Avenue S |
| 9. S Grady Way/Williams Avenue S  | 10. S Grady Way/Wells Avenue S |

**Figure 1** shows the 2025 PM peak hour volumes and **Figure 2** shows the 2035 PM peak hour volumes at the 10 study intersections. Southbound Williams Avenue S is forecast to carry higher traffic volumes than southbound Wells Avenue S, because to the north of N 1st Street, Williams Avenue S is one-way southbound and Wells Avenue S is one-way northbound.

Figure 1. 2025 PM Peak Hour Traffic Volumes

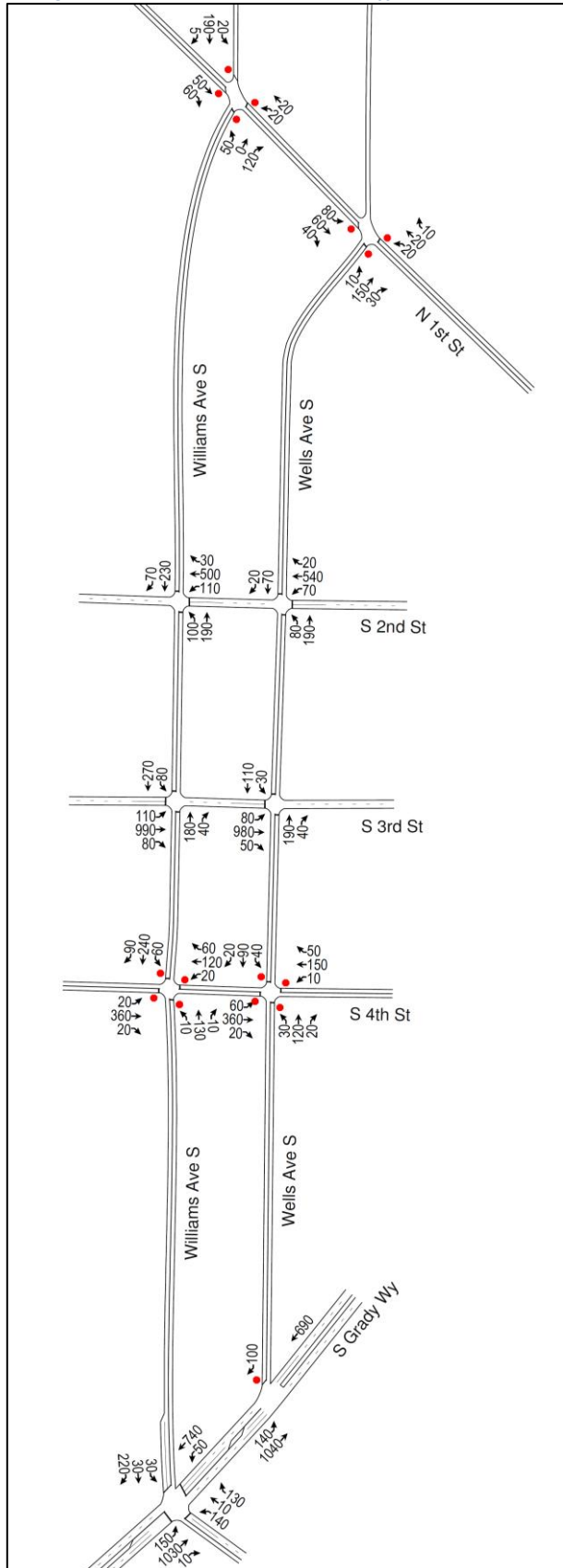
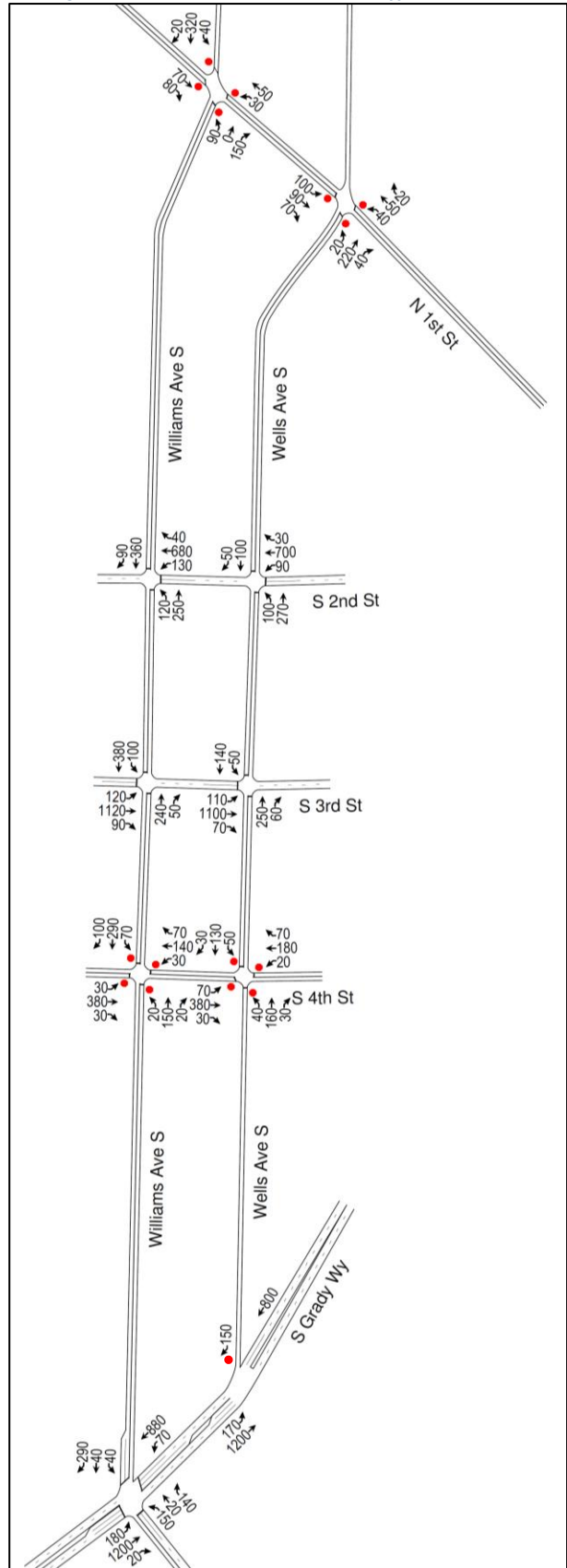


Figure 2. 2025 PM Peak Hour Traffic Volumes



**Two-Way Conversion Scenarios**

The Downtown Circulation Traffic Analysis evaluated two downtown two-way conversion options: Scenario 1, which assumed single travel lanes in each direction on S 2nd Street and S 3rd Street, and Scenario 2, which added a center left turn lane on S 2nd Street between Logan Avenue S and Main Avenue S. For this project, the design of the two-way Williams Avenue S and Wells Avenue S intersections with the one-way S 2nd Street will need to account for the number of lanes under either Scenario 1 or Scenario 2 as decided by the City. The design for the intersections at S 3rd Street will be the same under either Scenario 1 or 2.

**Figure 3** shows the intersection channelization under Scenario 1 and **Figure 4** shows intersection channelization for Scenario 2. Under Scenario 2, the current plan for the one block segment of S 2nd Street between Wells Avenue S and Main Avenue S is to have two westbound travel lanes and on-street parking on both the north and south sides of the street. When S 2nd Street is converted to two-way operations, this block would have three travel lanes under Scenario 2, and the on-street parking on the north side of S 2nd Street would be removed.

Under Scenarios 1 and 2, right turns from westbound S Grady Way to both northbound Williams Avenue S and northbound Wells Avenue S are expected to be restricted due to the acute angle of the right turn movements.

Figure 3. Scenario 1: Two Lanes on S 2nd St

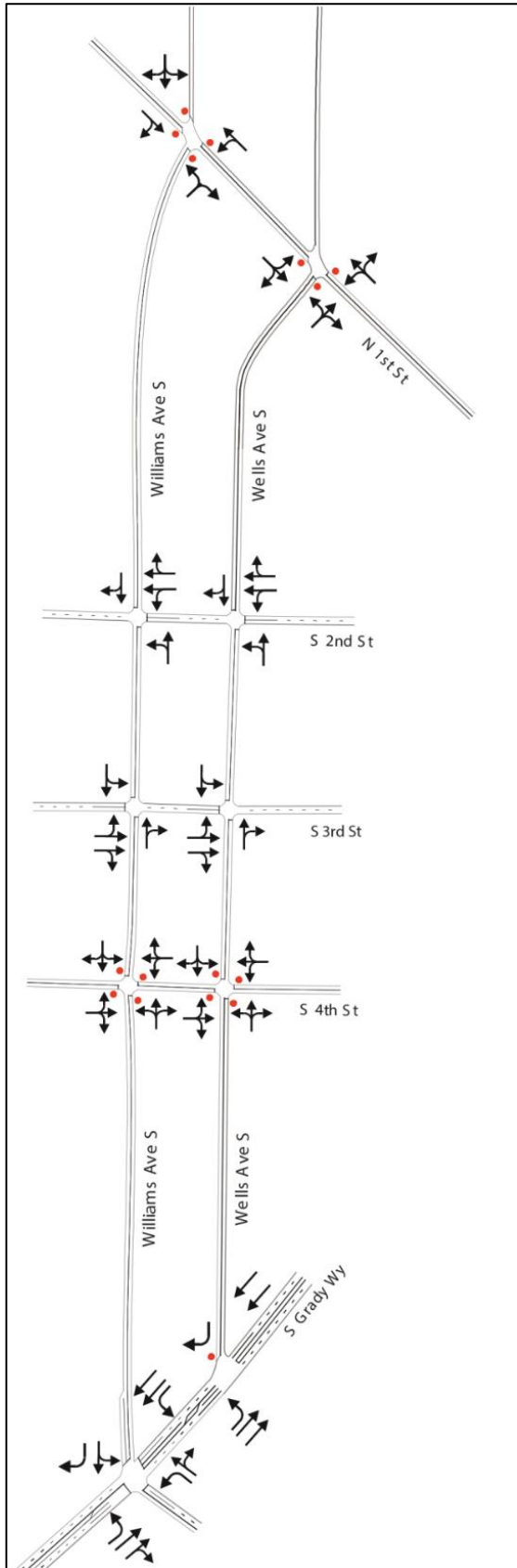
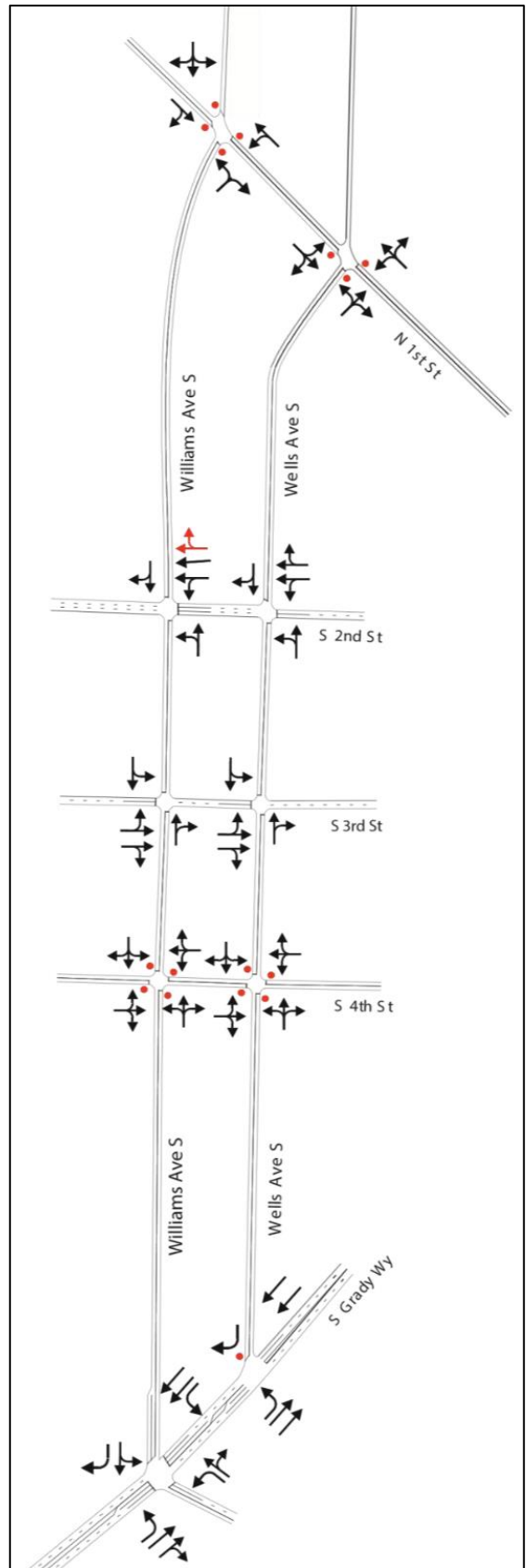


Figure 4. Scenario 2: Three Lanes on S 2nd St



## Traffic Operations

KPG analyzed the 2025 and 2035 PM peak hour traffic operations for Scenario 1 and Scenario 2 with two-way travel on Williams Avenue S and Wells Avenue S and one-way operations on S 2nd Street and S 3rd Street. The intersection level of service (LOS) ranges from A to F, with LOS A assigned when minimal delays are present and LOS F when lengthy delays occur. **Table 1** shows the 2025 LOS at the 10 study intersections for Scenarios 1 and 2. The intersection LOS is the same for both Scenario 1 and Scenario 2, but Scenario 2 will perform slightly better along S 2nd Street because of the third westbound travel lane. All of the study intersections are forecast to operate at LOS D or better during the 2025 PM peak hour.

**Table 1. 2025 PM Peak Hour Intersection LOS for Scenarios 1 and 2**

Study Intersections		Traffic Control	Scenario 1	Scenario 2
N 1st Street	Williams Ave S	All-Way Stop	A	A
N 1st Street	Wells Ave S	All-Way Stop	A	A
S 2nd Street	Williams Ave S	Signal	B	B
S 2nd Street	Wells Ave S	Signal	B	B
S 3rd Street	Williams Ave S	Signal	C	C
S 3rd Street	Wells Ave S	Signal	B	B
S 4th Street	Williams Ave S	All-Way Stop	C	C
S 4th Street	Wells Ave S	All-Way Stop	C	C
S Grady Way	Williams Ave S	Signal	B	B
S Grady Way	Wells Ave S	2-Way Stop	B	B

Notes: Intersection LOS and delay calculated with Synchro software.

**Table 2** shows the 2035 PM peak hour intersection LOS for Scenarios 1 and 2. Same as 2025, all of the study intersections have the same LOS, but Scenario 2 will perform slightly better along S 2nd Street because of the third westbound travel lane. The all-way stop-controlled intersection of S 4th Street/Williams Avenue S is forecast to operate at LOS E, and the rest of the study intersections are forecast to operate at LOS D or better during the 2035 PM peak hour.

**Table 2. 2035 PM Peak Hour Intersection LOS for Scenarios 1 and 2**

Study Intersections		Traffic Control	Scenario 1	Scenario 2
N 1st Street	Williams Ave S	All-Way Stop	B	B
N 1st Street	Wells Ave S	All-Way Stop	B	B
S 2nd Street	Williams Ave S	Signal	C	C
S 2nd Street	Wells Ave S	Signal	B	B
S 3rd Street	Williams Ave S	Signal	D	D
S 3rd Street	Wells Ave S	Signal	C	C
S 4th Street	Williams Ave S	All-Way Stop	E	E
S 4th Street	Wells Ave S	All-Way Stop	D	D
S Grady Way	Williams Ave S	Signal	B	B
S Grady Way	Wells Ave S	2-Way Stop	B	B

Notes: Intersection LOS and delay calculated with Synchro software.



### Operational Needs with Two-Way Traffic on S 2nd Street

The Downtown Circulation Traffic Analysis describes that with the conversion of S 2nd Street to two-way operations, the S 2nd Street/Main Avenue S intersection is forecast to operate at LOS F in 2035 with Scenario 1. Scenario 2 provides a 3-lane section along S 2nd Street and an eastbound left turn lane at Main Avenue S will improve intersection operations to LOS C in 2035. In addition, Scenario 2 provides a westbound left turn lane at the S 2nd Street/Burnett Avenue S intersection to assist buses accessing the transit center. **Figure 5** shows the conceptual design for Scenario 2 with Two-Way Operations on S 2nd Street.

A two-lane section (Scenario 1) at the Williams Avenue S and Wells Avenue S intersections would require lane transitions to accommodate the eastbound left turn lane at Main Avenue S and the westbound left turn lane at Burnett Avenue S, and each transition would likely eliminate one block of parking along the north side of S 2nd Street. Main Avenue S is located one block east of Wells Avenue S and Burnett Avenue S is located one west of Williams Avenue S.

*Figure 5. Conceptual Design for Scenario 2 with Two-Way Operations on S 2nd Street*



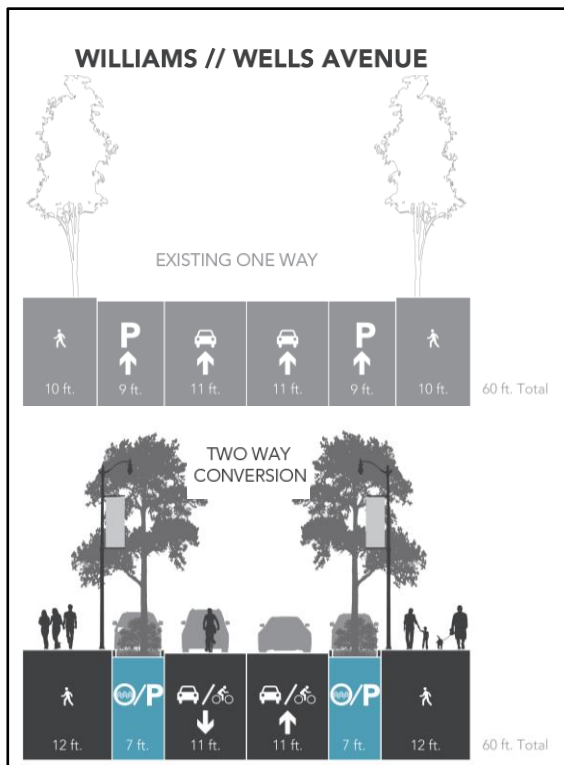
**Draft Renton Downtown Civic Core Vision and Action Plan**

The City of Renton recently completed a draft of its Renton Downtown Civic Core Vision and Action Plan which included a visioning process with community stakeholders to focus on long-term priorities and to generate concepts that would make the City’s downtown civic core more socially, culturally, and economically active. This section compares the draft vision with the preliminary design from the City’s Downtown Traffic Circulation Analysis.

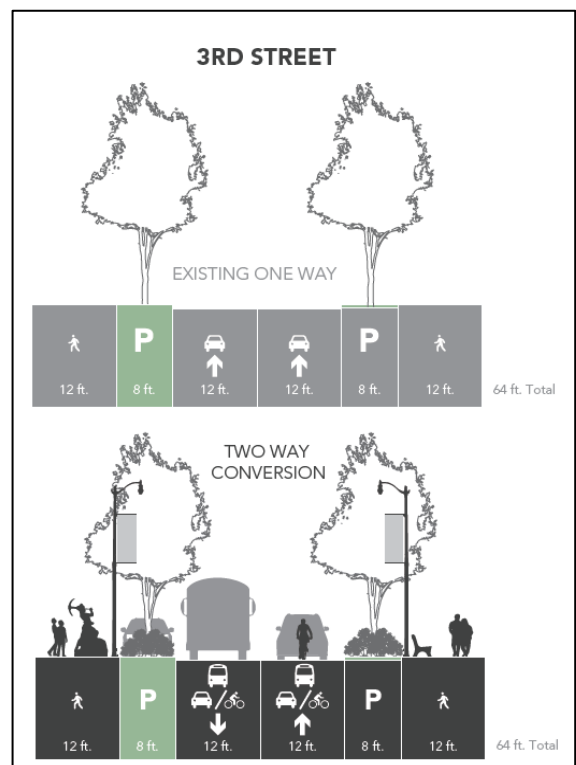
*Williams Avenue S, Wells Avenue S and S 3rd Street*

The draft vision is largely consistent with the preliminary design for Williams Avenue S, Wells Avenue S, and S 3rd Street as shown in **Figures 6** and **7**. In both the draft vision and preliminary design, Williams Avenue S and Wells Avenue S will be converted to two-way operations with one travel lane in each direction and on-street parking on both sides of the street. The draft vision would widen the sidewalks from 10 feet to 12 feet; this widening is currently not funded or part of the preliminary design for Williams Avenue S and Wells Avenue S. The preliminary design calls for Wells Avenue S to be designed as a bicycle boulevard and serve as the primary north-south bicycle corridor for downtown. The draft vision calls for both Williams Avenue S and Wells Avenue S to be designated as shared-street bicycle facilities in both directions, using “sharrow” markings. The draft vision and the preliminary design both call for S 3rd Street to be developed with two travel lanes and on-street parking on both sides of the street. The draft vision also includes bicycle sharrows on S 3rd Street.

*Figure 6. Williams Avenue S and Wells Avenue S Existing and Draft Vision Cross-Sections*



*Figure 7. S 3rd Street Existing and Draft Vision Cross-Sections*



*S 2nd Street*

The Draft Renton Downtown Civic Core Vision concept for S 2nd Street provides one travel lane in each direction, widens the sidewalks to 12 feet, and includes on-street parking on both sides of the street, as shown in **Figure 8**.

The Williams Avenue S and Wells Avenue S conversion project will rebuild S 2nd Street at the intersections with Williams Avenue S and Wells Avenue S and is not currently funded to improve the segments between the intersections. The design of these intersections will depend on whether the City selects Scenario 1 or Scenario 2.

Scenario 2 provides additional capacity with a center turn lane, but would not include on-street parking and curb bulbs along the north side of S 2nd Street.

**Conclusion**

The 2025 and 2035 PM peak hour traffic analyses show similar results under either Scenario 1 or Scenario 2 for intersections along Williams Avenue S and Wells Avenue S. The study intersections are forecast to operate at LOS D or better in 2025 and LOS E or better in 2035. The configurations from the draft Downtown Civic Core Vision and Action Plan would have traffic operations similar to Scenario 1 as described in the Downtown Traffic Circulation Analysis. The analysis shows that with the conversion of S 2nd Street to two-way operations, the adjacent S 2nd Street/Main Avenue S intersection is forecast to operate at LOS F in 2035 with Scenario 1. The 3-lane section provided by Scenario 2 will improve operations at the Main Street intersection and includes a westbound left turn lane at the S 2nd Street/Burnett Avenue S intersection to assist bus access to the transit center.

In order to establish the specific dimensions of the roadways and the associated intersections, the City needs to determine the configuration of S 2nd Street prior to finalizing the design of the Williams Avenue S and Wells Avenue S intersections. Intersections along S 3rd Street are consistent between the draft vision plan and the Downtown Traffic Circulation Analysis. Other decisions, such as widening sidewalks on Williams Avenue S and Wells Avenue S, could be determined at a future date as funding allows.

*Figure 8. S 2nd St Existing and Draft Vision Cross-Sections*

