

Memorandum

March 9, 2022

Project# 27495

To: Heather Richards, PCED, Planning Director
City of McMinnville
231 NE Fifth Street McMinnville, OR 97128

From: Nicholas Gross & Marc Butorac, PE, PTOE, PMP

RE: Downtown McMinnville Parking Assessment Memorandum

DOWNTOWN MCMINNVILLE PARKING ASSESSMENT

The Downtown McMinnville Parking Assessment is a high-level concept study with the purpose of identifying existing parallel parking inefficiencies and planning-level strategies to increase parallel parking supply. The assessment also includes an evaluation of angled parking; determining if angled parking can physically and operationally fit on the side streets (Cows Street to Ford Street) off Third Street between 2nd Street and 4th Street while maintain two-way traffic.

Executive Summary

The following key findings are based on site observations and the parallel parking inefficiencies and angled parking assessments:

- Approximately 141 existing parallel parking stalls, including eight (8) Americans with Disability Act (ADA) parking stalls were identified within the study area.
- Opportunities exist within the study area to increase parallel parking supply. Approximately 12 to 16 additional parallel spaces may be freed up, based on the following recommendations:
 - Striping 30-foot yellow curb restrictions consistency at stop-sign and signal approaches
 - Striping 20-foot yellow curb restrictions consistently from marked/unmarked crosswalks
 - Striping 25-foot parallel parking stalls consistently¹
 - Removing existing yellow paint located between existing parallel parking stalls
- Three (3) "Commercial Loading Zone Only" stalls were identified within the study area, including two (2) with unrestricted time of day signage.
 - Establishing time of day "Commercial Loading Zone Only" restrictions consistently from 8AM to 5PM can increase between three (3) and six (6) on-street parallel parking stalls during the evening hours.
 - The City may choose to work collaboratively with local businesses to determine appropriate time management strategies of Commercial Loading Zone spaces.

¹ Opportunity for narrower parking stalls exists. MUTCD identifies 22-foot stalls as appropriate for internal stalls and 20-foot lengths for typical end spaces. 25-foot parallel parking stalls were used as a conservative planning level assumption as part of this concept study.

- Based on the angled parking assessment, angled parking can physically fit within a typical side street cross section but requires modifications to the street context including the removal of parallel parking on both sides of the street and repositioning travel lane alignment against one curb.
- Without modifications to existing curb extensions, the installation of angled parking ***will not*** result in a net positive increase of parking stalls along the side streets and is likely to reduce the total parking stalls volume. This reduction is primarily due to:
 - Removing all parallel parking on both sides of the street to convert to angled parking stalls, and
 - Developing proper setbacks from marked and unmarked crosswalks while transitioning travel lanes from curb tight to the center of the roadway – see Figure 2.
- With the removal of curb extensions on one side of the street, angled parking may result in a net neutral or potential loss in parking stalls (up to two [2] parking stalls per block) compared to existing conditions.

Parking Assessment Study Area



The study area for the Side Street Angled Parking Assessment examining the feasibility of potential parallel parking efficiencies strategies and/or implementing angled parking was performed on the side streets of Cowls Street, Davis Street, Evans Street, and Ford Street between 4th Street and 2nd Street in downtown McMinnville, Oregon. Parking inefficiencies were examined on Cowls Street, Davis Street, Evans Street, Ford Street, 4th Street, and 2nd Street to determine if additional parking could be provided based on modifications to parking geometrics, signing, and striping.

Existing Parallel Parking Inventory

Existing parallel parking inventory was collected based on a site visit and review of high-quality satellite imagery. Table 1 and Table 2 summarize the existing number of parallel parking stalls block-by-block within the study area.

Table 1: Existing Parallel Parking Inventory (4th Street and 2nd Street)

Street	Location	Cowls to Davis	Davis to Evans	Evans to Ford	Total Parking
4 th Street	North Side	7 parking stalls 1 ADA	6 parking stalls	6 parking stalls	39 parking stalls 2 ADA
	South Side	4 parking stalls	8 parking stalls 1 ADA	8 parking stalls	
2 nd Street	North Side	5 parking stalls	4 parking stalls	5 parking stalls	28 parking stalls 2 ADA
	South Side	7 parking stalls 1 ADA	3 parking stalls	4 parking stalls 1 ADA	

Table 2: Existing Parallel Parking Inventory (Cowls, Davis, Evans, and Ford Street)

Street	Location	4 th to 3 rd	3 rd to 2 nd	Total Parking
Cowls Street	East Side	4 parking stalls	4 parking stalls 1 ADA	17 parking stalls 1 ADA
	West Side	4 parking stalls	5 parking stalls	
Davis Street	East Side	5 parking stalls	5 parking stalls 1 ADA	18 parking stalls 2 ADA
	West Side	4 parking stalls 1 ADA	4 parking stalls	
Evans Street	East Side	5 parking stalls	6 parking stalls	19 parking stalls
	West Side	5 parking stalls	3 parking stalls	
Ford Street	East Side	6 parking stalls	6 parking stalls	20 parking stalls 1 ADA
	West Side	5 parking stalls	3 parking stalls 1 ADA	

Based on the existing condition inventory recorded during the project team site visit, there are approximately 141 existing parallel parking stalls including 8 ADA parking stalls within the project study area².

² Commercial loading zones were not recorded as parking stalls; two (2) commercial loading zones were recorded

EXISTING PARALLEL PARKING INEFFICIENCIES

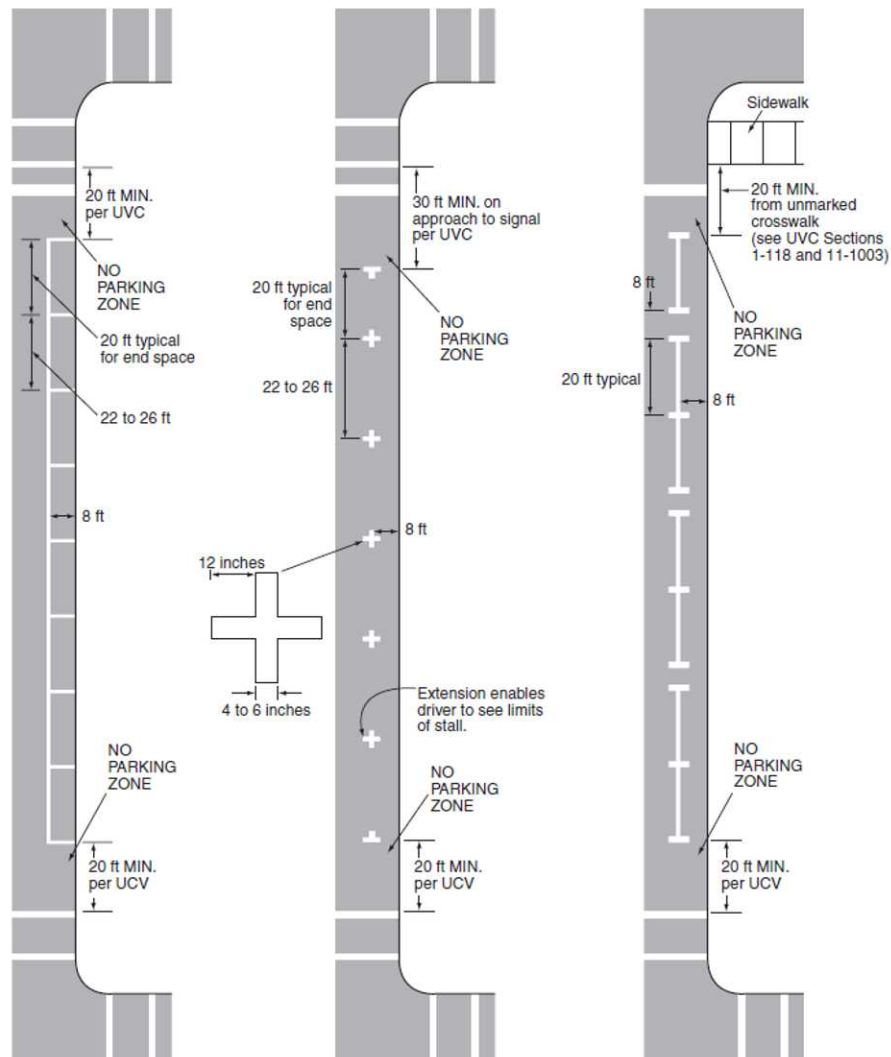
Opportunities to implement additional parallel parking without modifications to existing street geometry were explored based on the recommended guidance for parallel parking stall geometry identified in standard reference materials.

Reference Material and Analysis Assumptions

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

Federal regulations establish the MUTCD as "the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel" (23 USC 655.603). The MUTCD does not dictate requirements for parking zones but provides the standard that "Parking space markings shall be white." The MUTCD includes examples of parking space markings, shown below, which cite the Uniform Vehicle Code (UVC).

Figure 3B-21. Examples of Parking Space Markings



UNIFORM VEHICLE CODE (UVC)

The UVC was developed by the National Committee on Uniform Traffic Laws and Ordinance and last updated in 2000. It serves as a “comprehensive guide or standard for state motor vehicle and traffic laws” (Transportation Research Board) and was intended to promote uniformity in traffic regulation across states. It serves as the bases for traffic laws in many states. The sections from the UVC referenced in the MUTCD include the definition of a crosswalk and text prohibiting “stopping, standing, or parking” “within 20 feet of a crosswalk at an intersection” or “within 30 feet of any flashing signal, stop sign, yield sign or traffic—control signal located at the side of a roadway.”

THE DIMENSIONS OF PARKING FIFTH EDITION

The Dimensions of Parking Fifth Edition is a standard reference for studying, planning, designing, implementing, and maintaining parking. Specifically, the Dimensions of Parking Fifth Edition provides details on parking geometrics based on varying street contexts including curb-to-curb width, type of parking, and angled of parking stall. Based on the Dimensions of Parking guidance, the 85th percentile vehicle in the United States is 17' 3".

- As part of the parallel parking inefficiencies assessment and based on the recommended parallel parking stall lengths identified in the Dimensions of Parking Fifth Edition, parking stall lengths of 25 feet were used to evaluate the potential for increased parallel parking stalls in the study area.

NATIONAL ASSOCIATION OF CITY TRANSPORTATION OFFICIALS (NACTO)

National Association of City Transportation Officials (NACTO) Urban Street Design Guide provides guidance on the design of streets and intersections, including intersection visibility and sight distance. Based on the NACTO's Urban Street Design Guide, daylighting intersections by removing parking within 20 feet of the intersection is recommended.

- As part of the parking inefficiencies assessment, removing parking within 20 feet of the was assumed when examining opportunities for additional parallel parking stalls.

Existing Parking Inefficiencies

Based on site visit documentation and review of high-quality satellite imagery, the primary elements resulting in inefficient use of parking include:

INCONSISTENT PARKING STALL DIMENSIONS

Based on project team site visit documentation, parallel parking stall lengths varied between 18 to 25 feet in the study area.

- Consistently striping 25-foot parking stalls is recommended and can increase the overall number of parking stalls within the study area when coupled with additional parking efficiency strategies.

INCONSISTENT YELLOW CURB DISTANCES FROM INTERSECTION

Based on project team site visit documentation, yellow curbs (prohibited parking) offset from intersections varied between 20 and 35 feet.

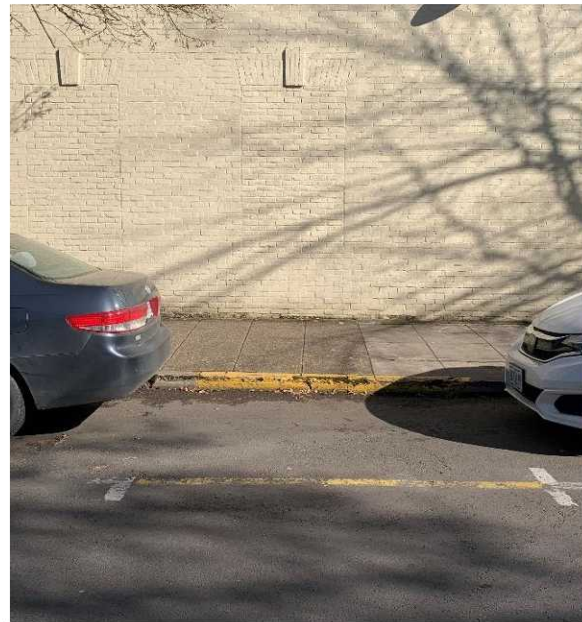
- Consistency striping a 30-foot offset from stop signs and signals and a 20-foot offset from marked/unmarked crosswalks is recommended and can increase the overall number of parking stalls within the study area when coupled with additional parking efficiency strategies.

USE OF YELLOW PAINT BETWEEN EXISTING PARKING STALLS

Based on project team site visit documentation, yellow paint is used between parallel parking stalls on side streets to fill excess or leftover space due to total block length in relation to parallel parking stall lengths and parking limitations (i.e., loading zones, driveway access points). Yellow paint was specifically used in front of street trees, likely intended to reduce the potential of car doors opening into the street trees. On several side streets, multiple yellow paint lines between parallel parking exists within the same block.



Example of yellow paint between parallel parking stalls on Evans Street



Example of yellow paint between parallel parking stalls on Cows Street

- Removing yellow paint between parallel parking stalls in combinations with consistently striping parallel parking stall lengths is recommended and can increase the overall number of parking stalls within the study area when coupled with additional parking efficiency strategies.
- Particularly, combining the removal of yellow paint between multiple parallel parking stalls within the same block can increase the overall number of parking stalls within the study area.

COMMERCIAL LOADING ZONE ONLY PARKING STALLS LENGTHS

Three (3) "Commercial Loading Zone Only" stalls are located within the study area and include lengths ranging from 60 to 80 feet. The City may consider the opportunity for off-street commercial loading in adjacent surface parking lots, consolidating the length of "Commercial Loading Zone Only" stalls, or placing time of day restrictions for the loading areas (i.e., restrict loading between 8AM and 5PM)³ to free up additional on-street parking during the evening hours. Based on implementation of these strategies, an additional three (3) to six (6) parking stalls may be added.

³ Only one (1) of the Commercial Loading Zone Only stalls restricted use between 8AM and 5PM.

Side Street Angled Parking Assessment

The existing physical and operational characteristics of Cows Street between 2nd Street and 4th Street were evaluated to determine if angled parking off Third Street could be implemented without losing a lane of traffic. Cows Street was used for the analysis as it represents a typical side street in downtown McMinnville.

EXISTING PHYSICAL AND OPERATIONAL CHARACTERISTICS

Cows Street has a curb-to-curb width of 40 feet and includes two (2) 12-foot travel lanes and parallel parking (8 feet) on both sides. No street center stripe is provided. Exhibit 1 illustrates a typical section of Cows Street including curb extensions at the Cows Street/Third Street intersection.

Exhibit 1: Cows Street Typical Section



Cows Street facing north between 3rd and 4th Street

Curb Extensions

Existing curb extensions are located at all Third Street intersection corners within the study area (Cows, Davis, Evans, Ford) creating shorter crossing distances for pedestrians, tighter curve radii for vehicles, and increased visibility of pedestrians waiting to cross the street. The existing curb-to-curb width between the curb extensions is 24 feet. The width between curbs along the block is 40 feet.

Curb extensions pose a challenge for implementing angled parking due to vehicles needing to maneuver through the curb extension "pinch point" of 24 feet and then transition to one side of the street to be properly positioned to access the angled parking stall. The following section illustrates and further explains the required offset and transition zone needed to implement angled parking.

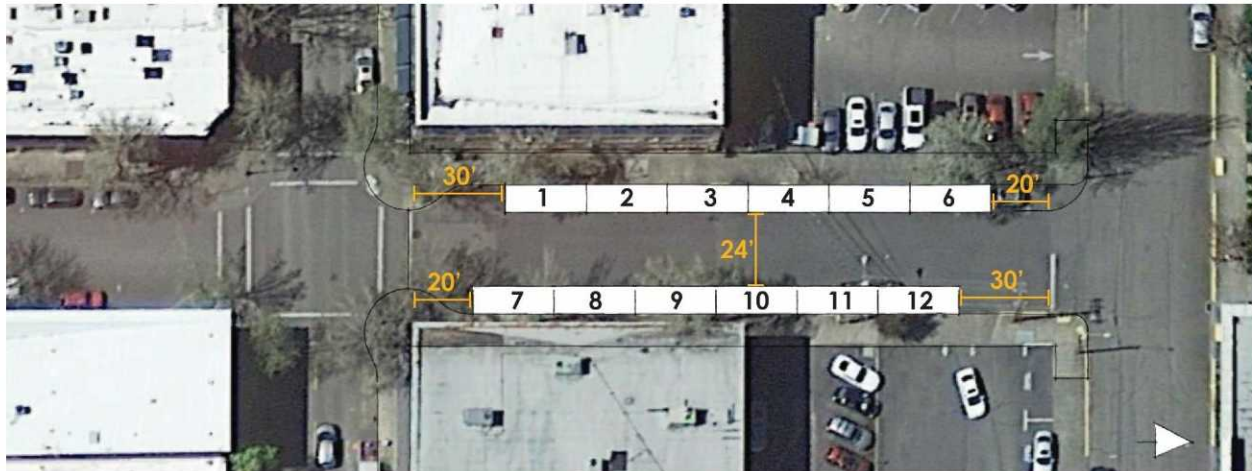
SIDE STREET PARKING COMPARISON

For the purposes of the side street angled parking assessment, unconstrained conditions were used for comparison purposes assuming no prohibited parking (yellow paint) and no driveway access requirements.

SCENARIO 1: EFFICIENT PARALLEL PARKING

Scenario 1 includes parallel parking on both sides of the street with a 30-foot setback from existing stop signs and 20-foot setbacks from existing marked/unmarked crosswalks. Due to the existing block length of 200 feet and considering the required setbacks, 25-foot parallel parking stalls were used to better accommodate the block length to parallel parking stall length ratio. Figure 1 illustrates the unconstrained parallel parking scenario.

Figure 1: Unconstrained Parallel Parking Scenario



As illustrated in Figure 1, up to 12 parallel parking spots could be accommodated on a one block segment of Cows Street under the unconstrained scenario assuming consistent striping of 25-foot parallel parking stall lengths⁴. Table 3 summarizes the comparison of Scenario 1 to existing conditions.

Table 3: Comparison of Scenario 1 to Typical Side Street Existing Conditions

Cows Street (3 rd to 4 th)	Existing Parking Stalls	Scenario 1 Parking Stalls	Net Difference Implementing Scenario 1
East Side	~4 to 5	6	~+1
West Side	~4 to 5	6	~+1

As summarized in Table 3, implementing Scenario 1 has the potential to increase up to two (2) parallel parking stalls per typical side street block.

⁴ Based on the project team site visit, the highest number of existing parallel parking stalls on a north-south street was recorded on the east side of Ford Street between 2nd and 3rd street which includes seven (7) parallel parking stalls.

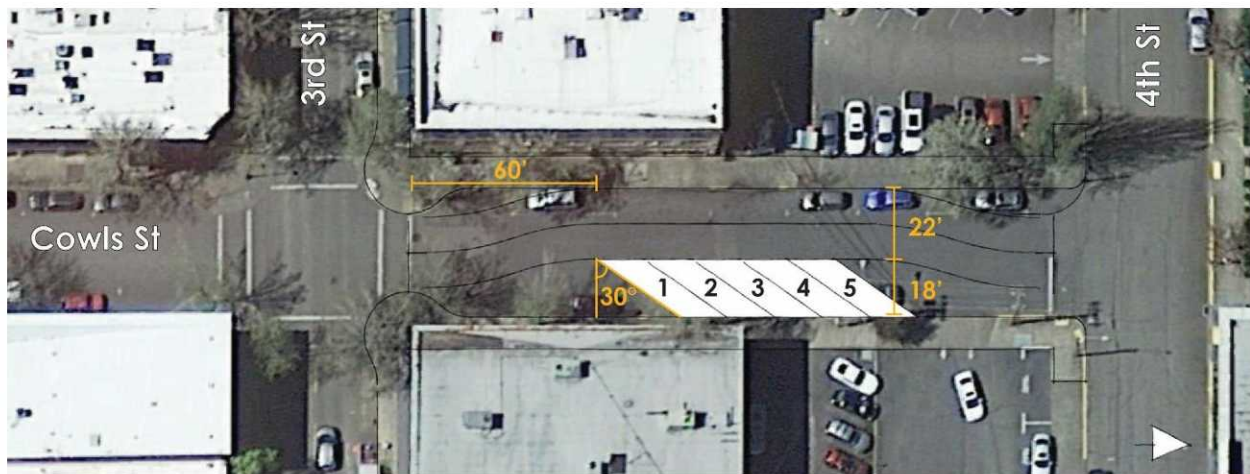
SCENARIO 2: ANGLED PARKING MAINTAINING EXISTING CURBS

Scenario 2 includes angled parking on one side of the street. Angled parking is shown at 18-foot parking stall depths, 8.5 feet wide, and angled at 30° based on the guidance provided in the Dimensions of Parking, Fifth Edition for a street with a curb-to-curb width of 40 feet.

Due to the existing curb extensions at the 3rd Street/Cowls intersection, a painted taper is required to transition vehicles to the opposite side of the angled parking stalls. A 60-foot transition “taper” is recommended based on an assumed operating speed limit of 20 MPH. Parallel parking opposite the angled parking will need to be removed. Two (2) 11-foot travel lanes.

Figure 2 illustrates the angled parking maintaining existing curbs scenario.

Figure 2: Angled Parking Maintaining Existing Curbs



As illustrated in Figure 2, up to five (5) angled parking spots could be accommodated on a one block segment of Cowls Street. In this scenario only northbound vehicles would have a properly positioned to access angled parking. Table 4 summarizes the comparison of Scenario 2 to existing conditions.

Table 4: Comparison of Scenario 2 to Typical Side Street Existing Conditions

Cowls Street (3 rd to 4 th)	Existing Parking Stalls	Scenario 1 Parking Stalls	Net Difference Implementing Scenario 1
East Side	~4 to 5	5	~0 to +1
West Side	~4 to 5	0	~-4 to -5

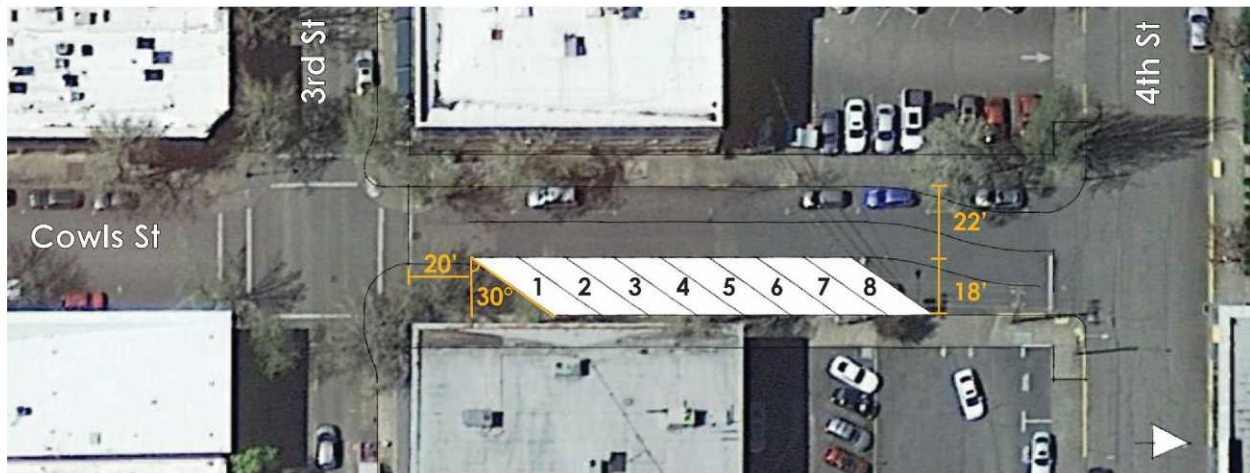
As summarized in Table 4, implementing Scenario 2 is likely to result in a loss of approximately 3 to 5 parking stalls per typical side street block.

SCENARIO 3: ANGLED PARKING CURB MODIFICATIONS

Scenario 3 includes angled parking on one side of the street, the removal of parallel parking, and modifications to the existing curb extensions at the 3rd Street/Cowls Street intersection. The curb extensions modifications allow for the removal of the required taper (Scenario 2), allowing through vehicles to travel on a north-south path along Cowls Street.

Similar to Scenario 2, angled parking is shown at 18-foot parking stall depths, 8.5 feet wide, and angled at 30° based on the guidance provided in the Dimensions of Parking, Fifth Edition for a street with a curb-to-curb width of 40 feet. Figure 3 illustrates the angled parking maintaining existing curbs scenario.

Figure 3: Angled Parking Curb Modifications



As illustrated in Figure 3, up to eight (8) angled parking spots could be accommodated on a one block segment of Cowls Street. In this scenario only northbound vehicles would have a properly positioned to access angled parking. Table 5 summarizes the comparison of Scenario 3 to existing conditions.

Table 5: Comparison of Scenario 3 to Typical Side Street Existing Conditions

Cowls Street (3 rd to 4 th)	Existing Parking Stalls	Scenario 1 Parking Stalls	Net Difference Implementing Scenario 1
East Side	~4 to 5	8	~+3 to +4
West Side	~4 to 5	0	~-4 to -5

As summarized in Table 5, implementing Scenario 3 is likely to result in a neutral (0) to potential loss of up to two (2) parking stall per typical side street block.

If the City wanted to consider extending the angled parking beyond 2nd and 4th Streets or removing the bulb-outs to offset the travel lanes without transitions, the angle parking scenarios could warrant additional spaces beyond what is demonstrated above.

Recommendations

Based on the project team site visit, parking inefficiency assessment, and side street angled parking analysis, **maintaining parallel parking on the side streets with improved efficiencies strategies aimed at increasing the overall number of parallel parking stalls is recommended.** Parallel parking efficiency strategies include:

- Striping 30-foot yellow curb restrictions consistency at stop-sign and signal approaches
- Striping 20-foot yellow curb restrictions consistently from marked/unmarked crosswalks
- Remove existing yellow paint located between existing parallel parking stalls

Implementing the parallel parking efficiency strategies has the opportunity to increase up to 14 parallel parking stalls within the study area.

- Establishing time of day "Commercial Loading Zone Only" restrictions consistently from 8AM to 5PM can increase between three (3) and six (6) on-street parallel parking stalls during the evening hours.

Implementing angled parking on the side streets is not recommended and is not likely to result in an increase in overall parking stalls. Further, angled parking would only be accessible for one-way travel and would require the removal of curb extensions at Third Street intersections to be most effective.