

Parking Yield Analysis: Converting Water Street from Two-Way to One-Way Traffic and Converting Selected Parallel Parking Spaces to Angled Parking

Purpose

This analysis estimates the parking impact of converting Water Street in downtown Saugatuck from two-way to one-way traffic and converting selected parallel-parking segments to 60-degree angled parking. Although the evaluated corridor extends almost 2,400 feet between Lucy and Culver Streets, the parking-gain calculation is limited to curb segments where existing parallel parking could potentially be converted after accounting for street width, driveways, intersections, hydrants, and other curbside constraints.

Geometry Assumptions

This review uses planning-level street-section geometry and should be confirmed through field survey and a scaled striping plan. A two-way section generally requires 20 to 22 feet of through-lane width, assuming two 10- to 11-foot lanes; a one-way section generally requires 11 to 12 feet. Parallel parking typically requires 7 to 8 feet. For 60-degree angled parking, the roadway feasibility test uses the perpendicular curb-to-stripe projection, not stall length measured along the angled stripe. Based on standard 9-foot-by-18-foot stall geometry, that projection is generally 18 to 20 feet, depending on striping, curb, and overhang assumptions.

Table 1: Geometry Assumptions

Street-Section Element	Planning-Level Width Assumption	Application to Water Street Analysis
Two-way through movement	20–22 ft.	Reflects two 10- to 11-foot travel lanes under the existing two-way condition.
One-way through movement	11–12 ft.	Represents the reduced travel-way requirement created by converting Water Street to one-way operation.
Parallel parking lane	7–8 ft.	Used to determine whether existing or retained parallel parking can remain on one or both sides of the street.
60-degree angled parking	18–20 ft. perpendicular curb-to-stripe projection	Used to test whether angled parking can be introduced on one side without encroaching on the required one-way travel lane; this measures the 90-degree projection from curb to stripe, not stall length.

Key Assumptions and Available Curb Frontage

Water Street is one of the most variable streets in downtown Saugatuck, ranging from approximately 35 to 54 feet in width. It currently operates as a two-way street with parking on both sides, but the parking configuration changes by segment based on available pavement width. Some segments have angled parking on both sides; others have parallel parking on both sides; and others combine angled parking on one side with parallel parking on the other. In some locations, the configuration changes within the same block face.

For this planning-level analysis, Walker assumed Water Street would be converted to one-way traffic, identified existing parallel-parking strings, and estimated the added spaces that could result from converting those strings to 60-degree angled parking where street width appears to support the change.

Table 2 identifies Water Street segments where existing parallel-parking strings may be converted to 60-degree angled parking under a one-way traffic concept. It compares the existing parallel spaces in each applicable segment with the estimated yield from angled parking on the same curb length and reports the resulting net gain.

Table 2: Water Street Potential Parking Gains Analysis, Assuming Conversion to One-Way Traffic Flow and Selected Parallel-to-Angled Parking Conversions

Water Street Segment	Est. Street Width	Existing Angled Spaces	Existing Parallel Spaces	Length of Parallel Parking Avail. For Conversion	Future Parking: 1 vs. 2 Street Sides	Net Gain
Lucy to Spear	53'	19	2	44'	2	+2
Spear to Francis	54'	40	0	0'	2	0
Francis to Mary	48'	22	12	275'	2	+13
Mary to Main	54'	36	0	0'	2	0
Main to Hoffman	45' (at parallel spaces)	21	7	88'	1	+1
Hoffman to Mason	41'	0	18	242'	1	+4
Mason to Culver	35' (at parallel spaces)	14	12	154'	1	+2
Total						+22

Note: Proposed angled-space yield is calculated at approximately 11 feet of curb length per 60-degree angled stall. Existing parallel-space yield is based on 22 feet per space. The angled-space column reflects existing angled spaces in each segment. Net gain reflects the estimated angled yield from converting the applicable parallel-parking string minus the existing parallel spaces affected by the conversion, including any opposite-side spaces removed where the street is too constrained to retain parking on both sides.

Existing and Proposed Parking Yield

The net gain was calculated by testing each segment against the planning-level geometry assumptions outlined above. A one-way concept with angled parking on one side and no opposite-side parking generally requires 29 to 32 feet: an 18- to 20-foot perpendicular curb-to-stripe projection plus an 11- to 12-foot one-way travel lane. Retaining parallel parking on the opposite side increases the required section to approximately 36-40 feet. Providing 60-degree angled parking on both sides increases it to approximately 47 to 52 feet. Where conversion appears feasible, the proposed angled supply was estimated at 11 feet per stall; the existing parallel supply was

based on 22 feet per space. Based on the current table assumptions, the total potential gain is approximately 22 spaces.

Implementation Considerations

Before advancing this concept, the City should confirm the assumptions through field measurement, traffic review, and a preliminary striping plan. Key items to verify include one-way circulation direction, street width, driveway and intersection maneuvering, pedestrian visibility, emergency access, loading needs, fire hydrant clearances, snow storage, wayfinding, and curbside operating requirements. The final design should confirm that the proposed 60-degree spaces fit without encroaching on the required travel lane or compromising sight lines.

Conclusion

Based on the available Water Street table data, converting feasible parallel-parking strings to 60-degree angled parking under a one-way traffic concept could add approximately 22 on-street spaces. The largest opportunity is Francis-to-Mary, with an estimated gain of 13 spaces. Other gains include 4 for Hoffman-to-Mason, 2 for Lucy-to-Spear, 2 for Mason-to-Culver, and 1 for Main-to-Hoffman. These estimates should be confirmed through field measurement and a concept striping plan before implementation.