DES MOINES RAIL TRANSLOAD
IDENTIFICATION OF TRANSPORTATION IMPEDIMENTS

DES MOINES AREA MPO

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Final

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The Des Moines Area Metropolitan Planning Organization (MPO) updated the *"Goods Movement"* report in 2006. This report included a list of the top ten freight impediments in the Des Moines region. These freight impediments were either Structural or Operational. Structural impediments could be in the form of overpasses that are too low for trucks or trains to clear, intersections that trucks can't navigate, or bridges with weight restrictions. Operational impediments could include congested corridors with traffic volumes that impede truck movement, one-way streets that restrict access, or extended loading/unloading time due to roadway characteristics. A freight impedences map is shown in **Figure 1**. This map comes from the Horizon Year 2035 Metropolitan Transportation Plan and is based on the locations from the 2006 *"Goods Movement"* report. Very little information is provided in the report that identifies or describes the impedence. Therefore, each location was given a cursory field review to ascertain what actual or perceived impediment may exist.

The ten locations and their potential impediments as they pertain to truck traffic are listed below. **Figures 2.01** through **2.10** show the locations.

- 1) Euclid Avenue and 2nd Avenue: The corner radii on the west leg of the intersection appear to be inadequately designed for truck turning traffic. A building situated in the SW quadrant of the intersection complicates the ability to reconstruct this corner.
- 2) Euclid Avenue and 6th Avenue: The corner radii on all four quadrants are inadequate for truck traffic. Buildings are situated up against the intersection on all four corners. Left turning radii are probably less than desirable, but were not evaluated at this time.
- 3) East 30th Street and Scott Avenue: Although this intersection was likely designed to the standard practices of its day, design standards and practices have evolved over time. This intersection does not meet today's design conventions and the span wire signal is less than ideal compared to what would be designed if it were to be installed today. Additionally, the pole and pole-mounted traffic control cabinet sits right on top of the intersection curb-line and is vulnerable to vehicles that require large amounts of room to make their right turns.
- 4) 2nd Avenue Rail Bridge by Firestone: This rail bridge has a height restriction and is posted at 13'4".
- 5) East 18th Street Railroad Crossing(s) north of Market Street: There are multiple crossings in a 500-foot distance. The most northern crossing is a single-track; the middle crossing is a two-track crossing; and the last crossing near Market Street consists of nine tracks to cross in just over 100 feet (measured from edge of track to edge of track).
- 6) Delaware Avenue and Hull Avenue: This is a small intersection that was not built for truck turning movements. The NW corner radius was increased to accommodate wheel path tracking for right turning trucks. This is a 4-way stop controlled

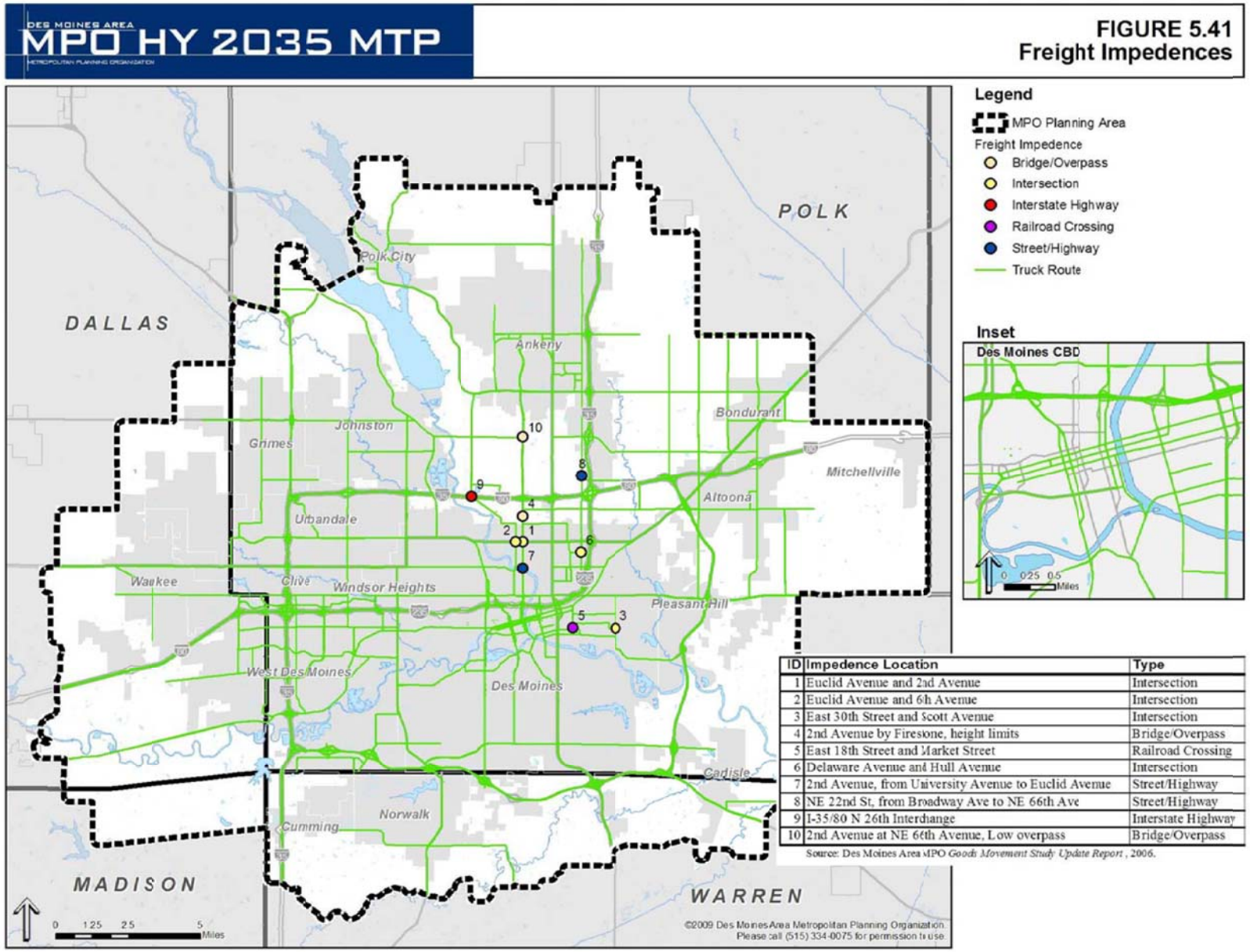
intersection. Vehicle stopped at the stop signs could be interfering with left turning truck traffic if not stopped at a sufficient distance back from the intersection.

- 7) 2nd Avenue; from University Ave to Euclid Ave: This is a 4-lane section without turn lanes. This includes no turn lanes at the signalized intersections (Aurora, Madison, Douglas, Hull, New York, Holcomb, and College). The lane widths are less than the desired 12 feet and the pavement conditions are "fair" as defined by their Pavement Condition Index (PCI) values.
- 8) NE 22nd Street; from Broadway Ave to NE 66th Ave: Many of the parcels of land on this section involve the use of trucks and hence there is a large amount of truck traffic traversing NE 22nd Street. NE 22nd Street is a 2-lane facility without turn lanes along most of the roadway. There are turn lanes at the 54th Street signal, at Broadway, and also at the NE 66th Street intersection. There is one section (NE 58th to NE 60th St) that has been widened and improved beyond the typical 2-lanes.
- 9) I-35/80 and N 26th Street – Interstate Highway: Currently N 26th passes over the interstate with no access to the interstate. Throughout the years interest has been expressed regarding a connection or access to the interstate to and from NW 26th St/NW Morningstar Drive.
- 10) 2nd Avenue at NE 66th Avenue: While there is no impediment for vehicles traveling straight through on 2nd Avenue, access to and from certain directions on NW 66th is limited by the existing bridge clearance. Clearance is posted at 12'1". The redesign of this interchange is being pursed and public meetings have been held regarding the alternatives for construction. Construction is scheduled for FY 2019.

In addition to the ten locations reviewed, truck routes were identified that would be the most likely candidates to carry truck traffic to/from the Des Moines Rail Port and respective origins/destinations in the region. Aside from the interstate freeways, these routes were: US 69/E 14th/E 15th St, 2nd Avenue/IA 415, MLK/Fleur Dr/19th St, Merle Hay Rd/IA 28/63rd St, University Ave, E University Ave, Hubbell Avenue, Hickman Rd, 6th Avenue, E 18th St, and Scott St. A field investigation of these roads, or portions of these roads, was made for purposes of visually observing the general geometry and pavement conditions.

The Iowa DOT Street and Highway Capital Improvement Program was used to identify future planned improvements on each of the road segments in question. The year of the improvement and the type of improvement were noted alongside the field observations. The Iowa DOT also maintains a safety improvement candidate locations (SICL) list that identifies the 200 highest ranked intersections. This list was checked against the locations/road segments to help identify additional impediments in the region and their potential for improvement selection.

Figure 1 – Freight Impedences Map



ID	Impedence Location	Type
1	Euclid Avenue and 2nd Avenue	Intersection
2	Euclid Avenue and 6h Avenue	Intersection
3	East 30th Street and Scott Avenue	Intersection
4	2nd Avenue by Firestone, height limits	Bridge/Overpass
5	East 18th Street and Market Street	Railroad Crossing
6	Delaware Avenue and Hull Avenue	Intersection
7	2nd Avenue, from University Avenue to Euclid Avenue	Street/Highway
8	NE 22nd St, from Broadway Ave to NE 66th Ave	Street/Highway
9	I-35/80 N 26th Interchange	Interstate Highway
10	2nd Avenue at NE 66th Avenue, Low overpass	Bridge/Overpass

Source: Des Moines Area MPO *Goods Movement Study Update Report*, 2006.

Figure 2.01 – Euclid Avenue and 2nd Avenue

Figure 2.02 – Euclid Avenue and 6th Avenue

Figure 2.03 - East 30th Street and Scott Avenue

Figure 2.04 - 2nd Avenue Rail Bridge by Firestone

Figure 2.05 - East 18th Street Railroad Crossing(s) north of Market Street

Figure 2.06 - Delaware Avenue and Hull Avenue

Figure 2.07 - 2nd Avenue; from University Ave to Euclid Ave

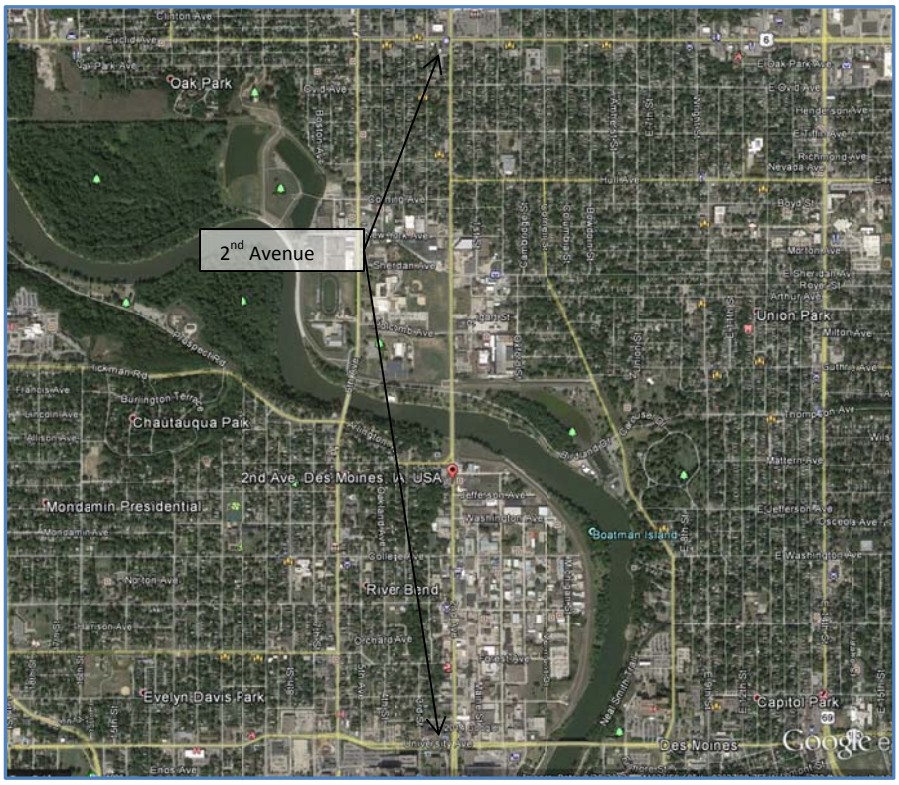


Figure 2.08 - NE 22nd Street; from Broadway Ave to NE 66th Ave

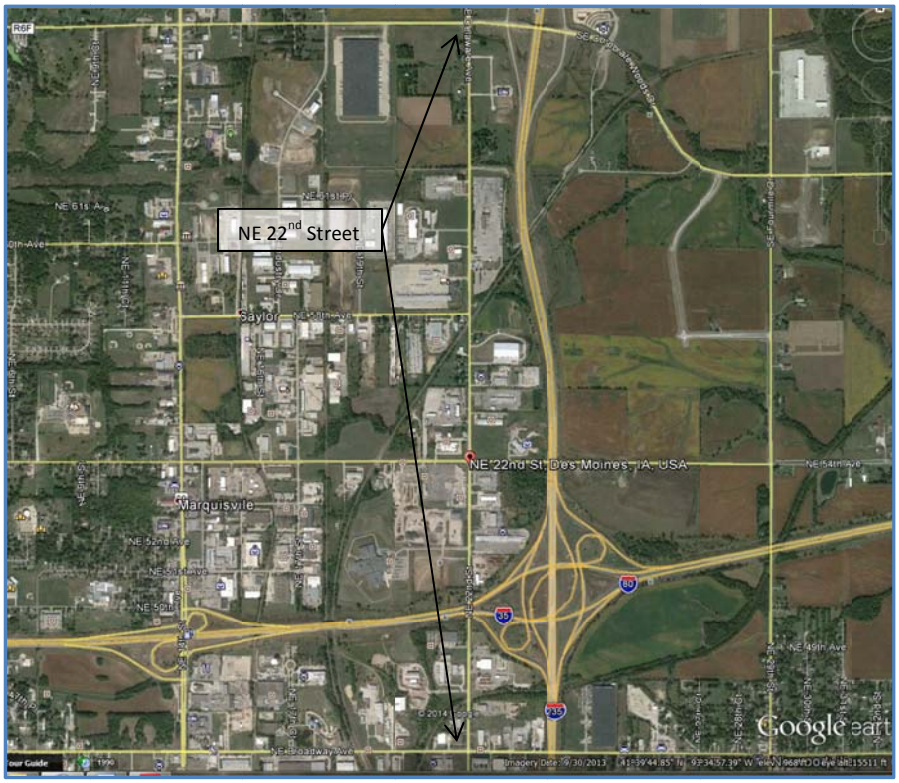


Figure 2.09 - I-35/80 and N 26th Street – Interstate Highway

Figure 2.10 - NE 66th Avenue at 2nd Avenue

Of the ten impediments listed in the "*Goods Movements*" document, only two are in the regional long range plan. SE 30th from Scott Avenue to Vandalia Road is programmed for widening in years 2026-2035 and it is assumed that both intersections at each end would be reconstructed with the improvement project. And NW 26th Street at I-35/80 is programmed for the addition of an interchange in years 2026-2035. These "dates" are not set firmly in place, but simply mean that regional leaders recognize and are in agreement for the need to pursue improvements at these locations. Polk County is planning the removal of the bridge at 2nd Avenue and NE 66th Avenue and plans to replace it with an at-grade intersection. Construction is set for FY 2019. That leaves seven of the impediments from the report that are not being addressed through a program. These are listed in **Table 1** with approximate planning level construction costs.

Table 1 – Non-programmed *"Goods Movements"* Truck Impediments

Location	Impediment	Potential Improvement	Planning Level Cost
Euclid Avenue and 2nd Avenue	NW and SW corner radii inadequate	Reconstruct NW corner.	$20K
Euclid Avenue and 6th Avenue	Corner radii; all four quadrants.	No improvements could be made without purchasing the existing businesses/buildings.	n/a
2nd Avenue Rail Bridge by Firestone	Height restriction of 13'4".	Reconstruct rail bridge with desired clearance.	$2.5Mil
East 18th Street Railroad Crossing(s) north of Market Street	Multiple rail crossings.	Construct a grade separation between the rails and the road.	$4.1M
Delaware Avenue and Hull Avenue	Corner radii in 3 of the 4 quadrants.	Reconstruct three quadrants with improved radii.	$35K
2nd Avenue (University Ave to Euclid Ave)	4-lane section without turn lanes; PCI "fair"; lanes less than 12 feet.	Add left turn lanes to the signalized intersections of Aurora, Madison, Douglas, Hull, New York, Holcomb, and College.	$1.8M
NE 22nd Street (Broadway Ave to NE 66th Ave)	2-lane facility without turn lanes but with a high amount of truck traffic.	Improve this section to a similar cross-section to the one north of 66th Street (4-lane facility with medians and left turn lanes at select intersection).	$12.5M

A field observation was completed of additional routes that would assist in moving goods to/from various metropolitan locations and the rail port. There is potential for improvement on some of these routes in order to address possible impediments. A description of the improvement and an associated planning level construction cost is provided in **Table 2**.

Table 2 – Additional Impediments

Location	Impediment	Potential Improvement	Planning Level Cost
US 69/E 14th St. (E University to I-35/80)	No turn lanes from E University to I-35/80.	Add turn lanes at three of the signalized intersections (Cleveland, Washington, and Madison).	$1.0M
IA 28/Merle Hay/63rd at University	Less than adequate radii on both corners. Truck wheel-path encroaches on pedestrian area.	Improve turning radii on NW and NE corners. Upgrade traffic signals to current standards. Relocate utilities as appropriate.	S400K
E 18th Street @ Scott E 18th Street @ Maury	Corner radii. Corner radii.	Minor improvements to turning radii at both intersections.	$70K

Some of the additional routes that were evaluated include University, Hubbell, and Martin Luther King (MLK)/Fleur Dr/19th St. Improvements to these roadways, to correct any truck impediments, were not considered for various reasons. With no connection to I-35/80 at MLK, the focus will be on improving truck impedances on parallel routes, with any improvements on MLK/19th Street aligning with the potential interchange construction. The issues to the south of downtown on MLK/Fleur Drive primarily concern the pavement condition and rough ride. This would be corrected through routine maintenance and resurfacing programs and is not considered so much a truck impedance as it affects the overall normal roadway function. A widening project is programmed for a section of University Avenue that will rectify any truck impediments that might exist on the section between 6th Avenue and 10th Street. University was not heavily evaluated as much of the roadway is geometrically acceptable and other functional parallel routes exist, in addition to I-235 being nearby. The completion of the SE Connector will eliminate the need to improve Hubbell Avenue as a route to/from the rail port to/from US 65. Therefore, truck impedances for the rail port project were not considered for Hubbell Avenue.

Construction of the SE Connector is expected to alleviate some of the traffic in the downtown area and will improve the movement of trucks and their goods while providing economic redevelopment opportunities. The SE Connector has been under construction since 2006. The roadway is open from SW 2nd Street to SE 9th Street, including dual bridges over the Des Moines River. Construction of the segment from SE 9th to SE 15th is currently in progress. Construction for Phase II from SE 15th Street to US 65 is programmed for years 2016-2025.

The costs provided in Table 1 and Table 2 are preliminary ball-park figures in today's dollars. These are not intended as construction cost opinions and are merely a demonstration of the magnitude of the potential improvements, which totals approximately $22.4 Million. (Table 1 and Table 2 combined, non-programmed improvements).