Development of Railroad/Highway Consolidation Rating Formula

Iowa DOT
In cooperation with
The Institute for Transportation at Iowa State University
(InTrans)

IOWA RAILROAD FACTS

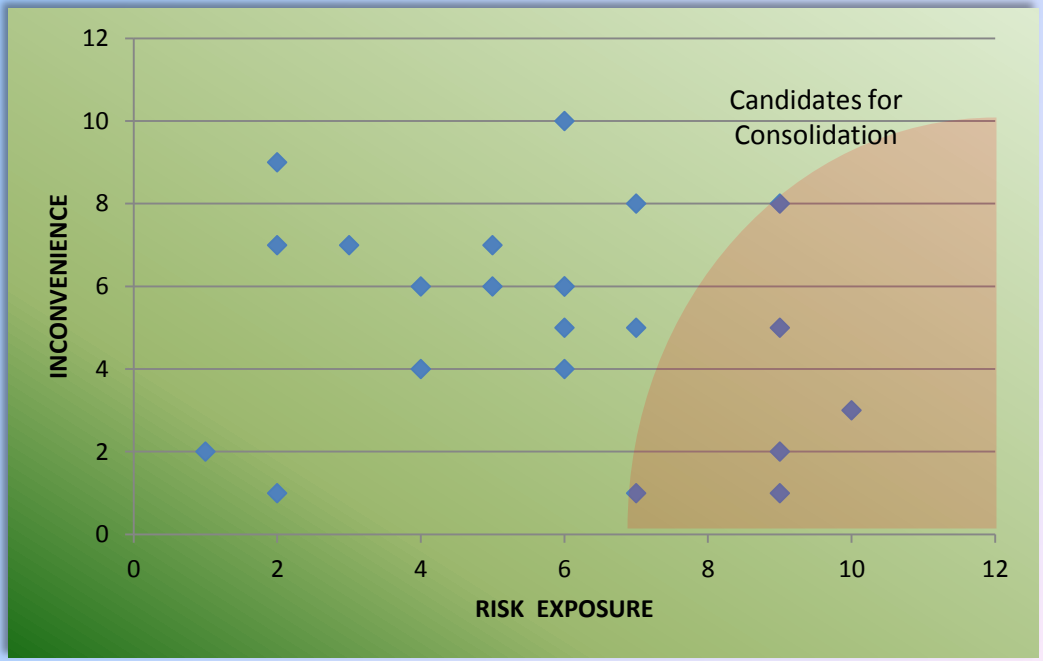
- ≈4,300 public crossings
- Over 5M vehicles/day
- 50 collisions/year

COMPELLING CONDITIONS

- Every crossing is a risk
- Non-Regulatory State
- Public arena

WHAT'S NEW?

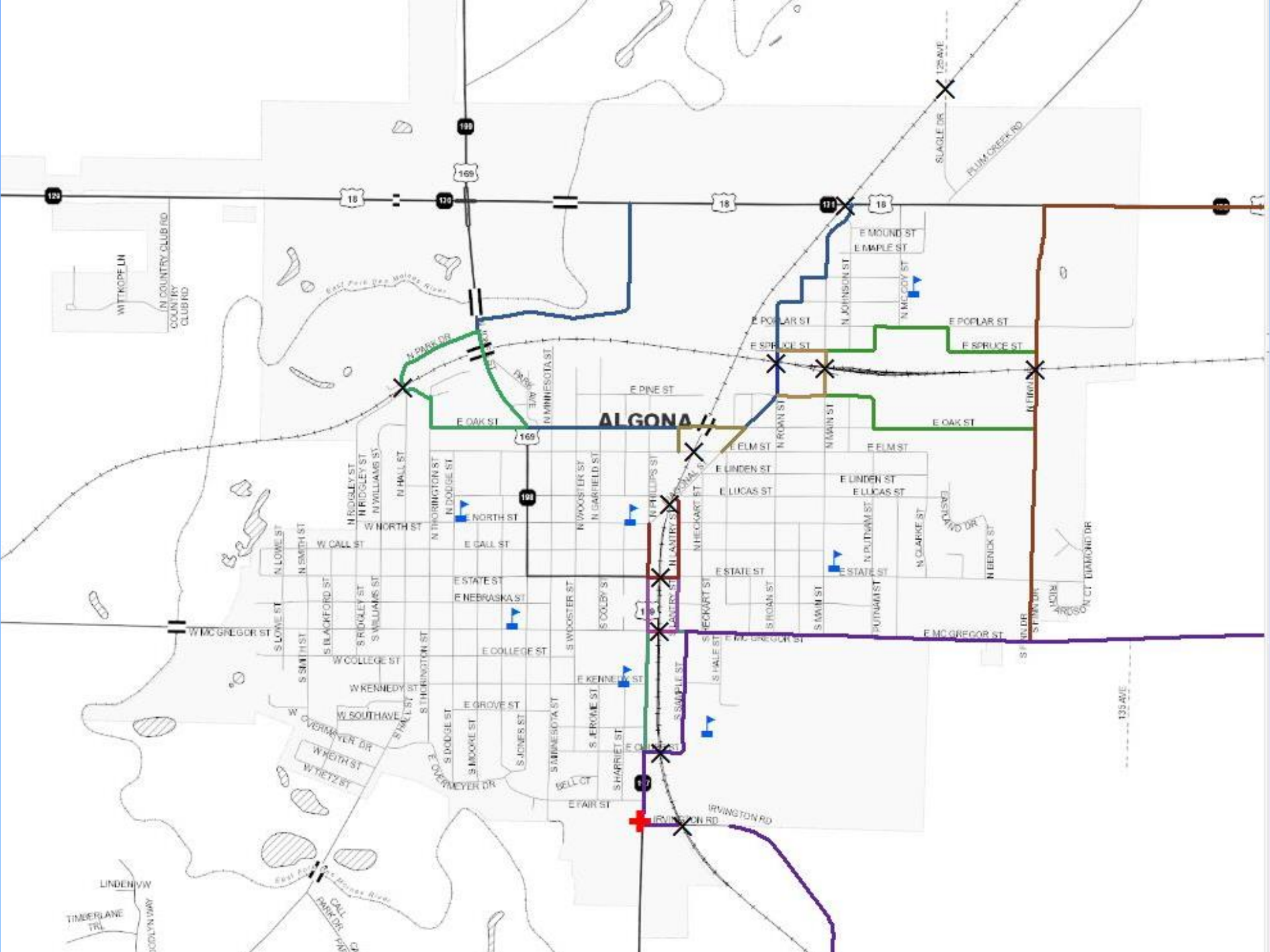
- Previously only risk and crash history
- This will balance risk with "inconvenience"
- GIS based
- This is a TOOL!



WHAT IS “INCONVENIENCE”

The amount of impact vs. perception

- Out of distance travel
- Emergency services
- Schools
- Added safety concerns
  - Amount of traffic
  - Crash history on the alternate route


ALGONA
E MOUND ST
E MAPLE ST
E POPLAR ST
E SPRUCE ST
E PINE ST
E OAK ST
E ELM ST
E LINDEN ST
E LUCAS ST
E NORTH ST
W NORTH ST
W CALL ST
E CALL ST
E STATE ST
E NEBRASKA ST
W MC GREGOR ST
E MC GREGOR ST
E COLLEGE ST
W COLLEGE ST
E KENNEDY ST
W KENNEDY ST
E GROVE ST
W SOUTHAVE
W OVERMEYER DR
E OVERMEYER DR
E FAIR ST
IRVINGTON RD
N PARK DR
N MINNESOTA ST
N ROAN ST
N MAIN ST
N JOHNSON ST
N MC COY ST
N PUTNAM ST
N CLARKE ST
N BENICK ST
N HECKART ST
N LANTRY ST
N WOOSTER ST
N GARFIELD ST
N PHILLIPS ST
N DODGE ST
N THORINGTON ST
N HALL ST
N RIDGLEY ST
N WILLIAMS ST
N SMITH ST
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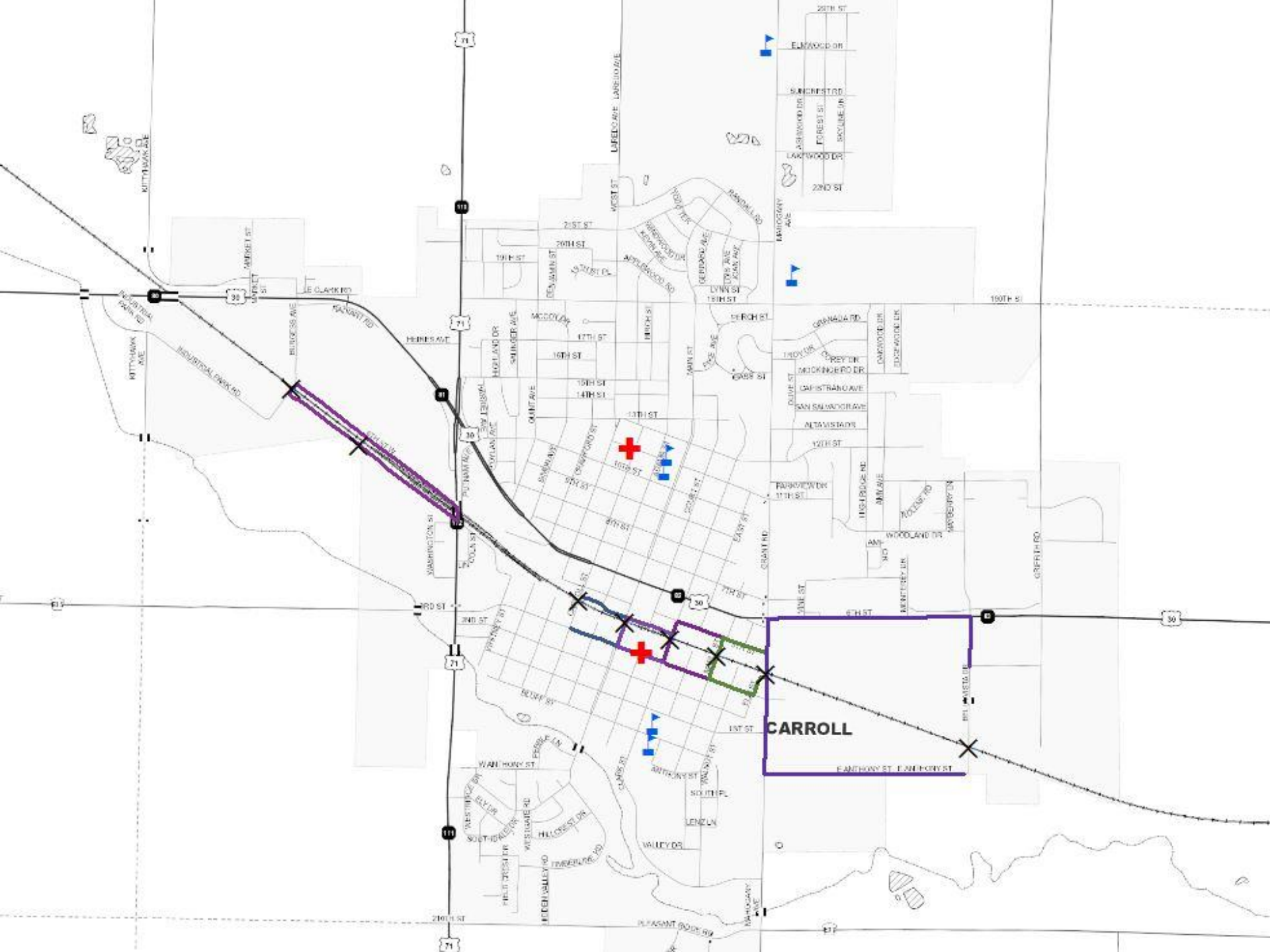
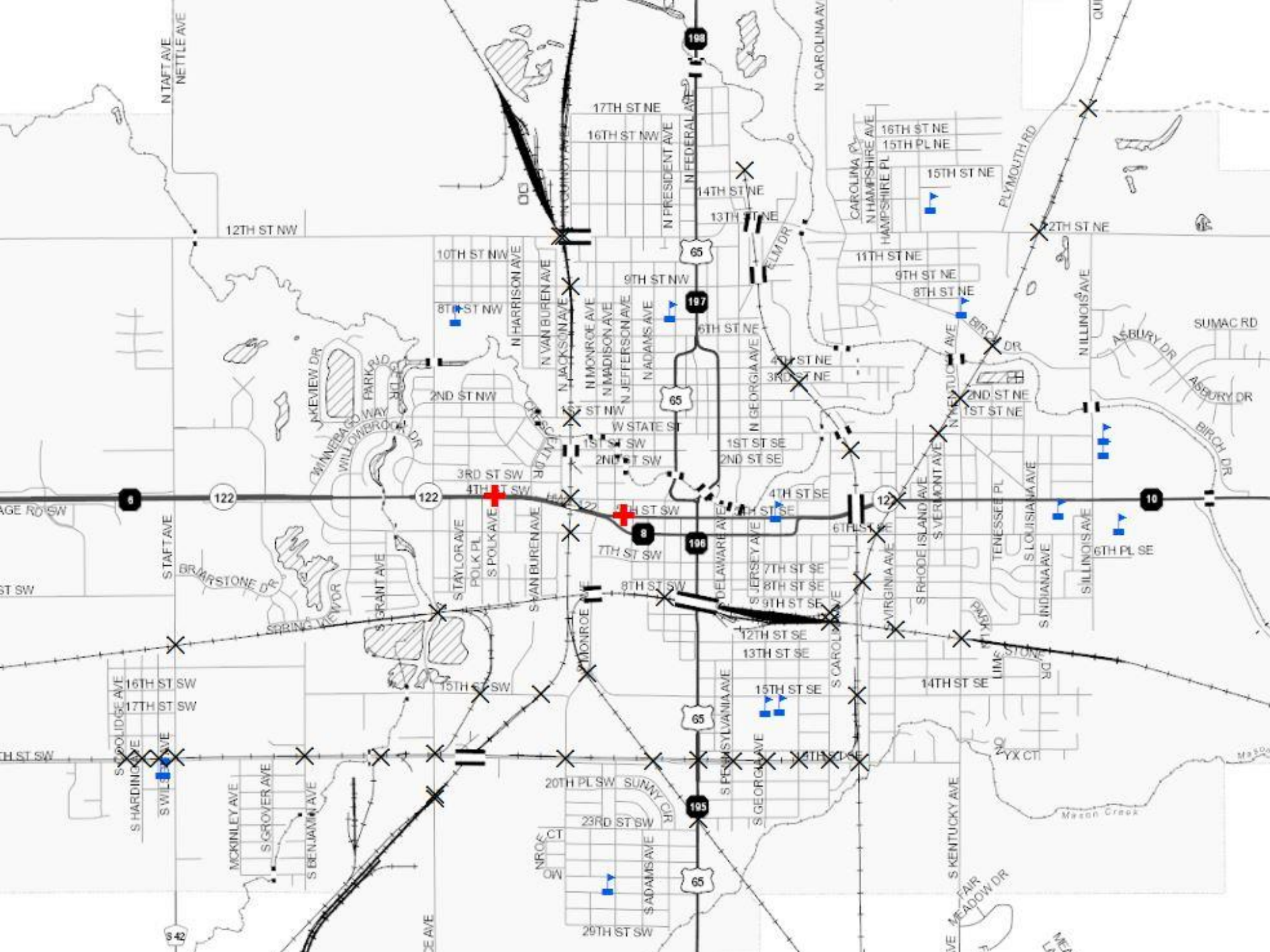
S THORINGTON ST
S HALL ST
S DODGE ST
S MOORE ST
S JONES ST
S MINNESOTA ST
S JEROME ST
S HARRIET ST
S WOOSTER ST
S COLBY ST
S SAMPLE ST
S HALE ST
S ROAN ST
S MAIN ST
S PUTNAM ST
S FINN DR
DIAMOND DR
RICHARDSON CT
EASTLAND DR
SLAGLE DR
PLUM CREEK RD
125 AVE
135 AVE
WITTKOPF LN
N COUNTRY CLUB RD
COUNTRY CLUB RD
LINDEN VW
TIMBERLANE TRL
CALL PARK DR
East Fork Des Moines River
169
18
120
171
199


CARROLL
ELMWOOD DR
SUNCREST RD
LAKEWOOD DR
22ND ST
21ST ST
20TH ST
19TH ST
18TH ST
17TH ST
16TH ST
15TH ST
14TH ST
13TH ST
12TH ST
11TH ST
10TH ST
9TH ST
8TH ST
7TH ST
6TH ST
5TH ST
4TH ST
3RD ST
2ND ST
1ST ST
190TH ST
E ANTHONY ST
W ANTHONY ST
SOUTH PL
LENZ LN
VALLEY DR
PLEASANT RIDGE RD
210TH ST
GRANADA RD
MOCKINGBIRD DR
CAPISTRANO AVE
SAN SALVADOR AVE
ALTA VISTA DR
PARKVIEW DR
WOODLAND DR
MONTEREY DR
GRIFFITH RD
LAREDO AVE
MAHOGANY AVE
KITTYHAWK AVE
INDUSTRIAL PARK RD
LE CLARK RD
HEINES AVE
PUTNAM AVE
WASHINGTON ST
COLN ST
GRANT RD
BLUFF ST
PERCH ST
MAIN ST
WEST ST
RANDALL RD
APPLEWOOD RD
DENJAMIN ST
MCCOY DR
HIGHLAND DR
SHUNGER AVE
QUINT AVE
HIRCH ST
PIKE AVE
BASS ST
DUVE ST
HIGH RIDGE RD
AMY AVE
MAYBERRY DR
WESTGATE RD
HILLCREST DR
HIDDEN VALLEY RD
PERRIE LN
CLARK ST
WALNUT ST
ANTHONY ST
BELLA VISTA DR
71
30
111
112
113



N TAFT AVE
NETTLE AVE
17TH ST NE
16TH ST NW
N FEDERAL AVE
N PRESIDENT AVE
N CAROLINA AVE
16TH ST NE
15TH PL NE
15TH ST NE
CAROLINA PL
N HAMPSHIRE AVE
HAMPSHIRE PL
PLYMOUTH RD
14TH ST NE
13TH ST NE
12TH ST NW
12TH ST NE
10TH ST NW
N HARRISON AVE
N VAN BUREN AVE
N JACKSON AVE
N MONROE AVE
N MADISON AVE
N JEFFERSON AVE
N ADAMS AVE
9TH ST NW
11TH ST NE
9TH ST NE
8TH ST NE
8TH ST NW
6TH ST NE
BIRCH DR
N ILLINOIS AVE
SUMAC RD
ASBURY DR
N GEORGIA AVE
4TH ST NE
3RD ST NE
2ND ST NE
1ST ST NE
2ND ST NW
1ST ST NW
W STATE ST
1ST ST SW
2ND ST SW
1ST ST SE
2ND ST SE
3RD ST SW
4TH ST SW
4TH ST SE
5TH ST SE
6TH ST SE
6TH PL SE
7TH ST SW
7TH ST SE
8TH ST SW
8TH ST SE
9TH ST SE
12TH ST SE
13TH ST SE
14TH ST SE
15TH ST SE
15TH ST SW
16TH ST SW
17TH ST SW
S TAFT AVE
BRIARSTONE DR
S GRANT AVE
S TAYLOR AVE
POLK PL
S POLK AVE
S VAN BUREN AVE
S MONROE AVE
S DELAWARE AVE
S JERSEY AVE
S VIRGINIA AVE
S RHODE ISLAND AVE
S VERMONT AVE
TENESSEE PL
S LOUISIANA AVE
S INDIANA AVE
S ILLINOIS AVE
S CAROLINA AVE
S PENNSYLVANIA AVE
S GEORGIA AVE
S COOLIDGE AVE
S HARDING AVE
S WILSON AVE
MCKINLEY AVE
S GROVER AVE
S BENJAMIN AVE
20TH PL SW
SUNNY CIR
23RD ST SW
29TH ST SW
S ADAMS AVE
S KENTUCKY AVE
FAIR MEADOW DR
YX CT
Mason Creek
198
197
196
195
65
122
6
8
10
S 42

VARIABLES CONSIDERED

- *Proximity to an intersection*
- *Proximity to another railroad highway crossing*
- *Truck traffic (Note: Must investigate availability on all public roads.)*
- *Population and demographic data (Possible source: US Census Bureau.)*
- *Trip generators (Possible sources: Local and state travel demand models.)*
- *Length of train (Note: May be very difficult to obtain.)*
- *Tonnage by segment (Note: This may potentially be used to back calculate number of rail cars.)*
- *Crash history and predicted risk*
- *Trip purpose (Note: Convenience factor may be weighted based on trip purpose, vehicle type or user, e.g. truck, public, EMS, etc.)*
- *Skew angle of railroad to roadway*
- *Humped crossing, with respect to percent grade*
- *Sight distance – stop and approach*
- *Non-motorist (pedestrian and bicycle) activity and/or presence of sidewalks and bike paths*
- *Proximity to transit pickup and drop off location(s)*
- *“Projected” rail traffic volume*

ISSUES WITH VARIABLES

- Dataset integrity/availability
- Feasibility
- Defining distances

WHAT IS LEFT?

- Weighting the variables
- Stakeholder meetings
- Corridor testing
- First run by January 1, 2015

QUESTIONS??

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