

TOTALS 4 / 6 / 8

GRAND TOTAL 18

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 082926T
Railroad BWSF
Milepost 27.52
Location Ferry St, Anoka

AADT 20,159
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	<u>1</u>
500-1,500	2
1,500-3,000	3
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	4
5	5

Total 4

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 2

Total 6

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	<u>7</u>

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 1
Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 8

TOTALS 20,317

GRAND TOTAL 30

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 067927M
Railroad BNSF
Milepost 132-7
Location 14th St S, Benson

AADT 8,199
HCADT _____
Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

<u>General Population Density (Per Sq. Mi.)</u>	
<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5
<u>Vulnerable fixed population (hospital, nursing home, prison)</u>	
1	2
2	4
3	6
4	8
5	<u>10</u>
<u>Vulnerable temporary population (schools, city halls)</u>	
1	1
2	2
3	3
4	<u>4</u>
5	5
<u>Emergency Services (Police Department, Fire station)</u>	
1	1
2	2
3	<u>3</u>
4	4
5	5

Total 20

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 7

TOTALS 14,318

GRAND TOTAL 25

Crude Oil by Rail Study
 Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 689 180 F
 Railroad CP
 Milepost 36.94
 Location Central Ave, Buffalo

AADT 13,007
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	<u>5</u>

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 14

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
 Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 8

TOTALS 12, 3, 7

GRAND TOTAL 22

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 6962886

Railroad CP

Milepost 36.4

Location 5th St NE, Buffalo

AADT 5983

HCADT _____

Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	<u>5</u>

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 12

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 7

TOTALS 7 / 7 / 7

GRAND TOTAL 21

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 0828105
 Railroad BNSF
 Milepost 21.86
 Location Egret Blvd, Coon Rapids

AADT 7893
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/4 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	<u>2</u>
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 7

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 7

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 8,516

GRAND TOTAL 19

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 082811Y
 Railroad BNSF
 Milepost 22.82
 Location Hanson Blvd, Coon Rapids

AADT 13299
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	4
5	5

Total 8

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 5

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 6

TOTALS 15, 7, 6
 GRAND TOTAL 28

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 0810186
 Railroad BNSF
 Milepost 210.02
 Location Washington Ave, Detroit Lakes

AADT 5,666
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

<u>General Population Density (Per Sq. Mi.)</u>	
<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5
<u>Vulnerable fixed population (hospital, nursing home, prison)</u>	
1	2
2	<u>4</u>
3	6
4	8
5	10
<u>Vulnerable temporary population (schools, city halls)</u>	
1	1
2	2
3	3
4	4
<u>5</u>	<u>5</u>
<u>Emergency Services (Police Department, Fire station)</u>	
1	1
2	2
3	<u>3</u>
4	4
5	5

Total 15

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 7

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 6

TOTALS 5, 6, 8

GRAND TOTAL 19

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 689257R
 Railroad CR
 Milepost 73.21
 Location State st, Eden Valley

AADT 3049
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	②
1,500-3,000	3
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	①
2	2
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	②
3	3
4	4
5	5

Total 5

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	④
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 6

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	⑤
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
 Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 8

TOTALS 11,977

GRAND TOTAL 27

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO082944R
 Railroad BNSF
 Milepost 38.47
 Location Jackson St, Elk River

AADT 6062
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	③
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	②
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	⑤

Emergency Services (Police Department, Fire station)

1	④
2	2
3	3
4	4
5	5

Total 11

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	⑤

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
 Near Misses - reported near misses by railroad; add 1 point each 2

Total 9

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	⑤
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 11 / 5 / 7

GRAND TOTAL 23

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 082943J
 Railroad BWSF
 Milepost 38.44
 Location Main st, Elk River

AADT 10237
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	<u>5</u>

Emergency Services (Police Department, Fire station)

1	<u>1</u>
2	2
3	3
4	4
5	5

Total 11

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 1

Total 5

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 8,97

GRAND TOTAL 24

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 082946E
Railroad BNSF
Milepost 34.31
Location Proctor Ave, Elk River

AADT 13020
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	<u>5</u>

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	4
5	5

Total 8

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 4
Near Misses - reported near misses by railroad; add 1 point each 0

Total 9

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 7

TOTALS 10,47

GRAND TOTAL 21

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 062847C
Railroad BNSF
Milepost 20039
Location Lake St N, Frazee

AADT 3684
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	<u>2</u>
1,500-3,000	3
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	<u>2</u>
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 10

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 0

Total 4

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 7

TOTALS 8,38

GRAND TOTAL 19

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 684233C
Railroad CR
Milepost 60.91
Location Main St, Kimball

AADT 5999
HCADT _____
Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	<u>2</u>
1,500-3,000	3
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	<u>2</u>
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 8

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 8

TOTALS 10,318

GRAND TOTAL 21

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 341174 Y
Railroad CP
Milepost 353.73
Location w Lyon Ave, Lake City

AADT 5510
HCADT _____
Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 10

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 8

TOTALS 13,718

GRAND TOTAL 28

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 097668 K
 Railroad BUSF
 Milepost 105.47
 Location Broadway W, Little Falls

AADT 13499
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>4</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	<u>2</u>
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	<u>4</u>
5	5

Total 13

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 7

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
 Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 8

TOTALS 7,315

GRAND TOTAL 15

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 067282F
 Railroad BUSF
 Milepost 2.63
 Location w main st, Marshall

AADT 9618
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	<u>1</u>
2	2
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	<u>1</u>
2	2
3	3
4	4
5	5

Total 7

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	<u>3</u>
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 5

TOTALS 7,318

GRAND TOTAL 18

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 6889363
 Railroad CP
 Milepost 3.94
 Location Humboldt Ave N, Minneapolis

AADT 2949
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within ½ mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	3
3,000-5,000	<u>4</u>
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	<u>2</u>
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	<u>1</u>
2	2
3	3
4	4
5	5

Total 7

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 8

TOTALS 4,3,8

GRAND TOTAL 15

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 082978 K
Railroad BJSF
Milepost 9.0
Location Talmage Ave SE, Minneapolis

AADT 899
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	<u>1</u>
2	2
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	4
5	5

Total 4

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	<u>7</u>

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 1
Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 8

TOTALS 13 / 4 / 5

GRAND TOTAL 22

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 0798 D
 Railroad BNSF
 Milepost 6.83
 Location 5th St S, Moorhead

AADT 3464
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/4 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	<u>6</u>
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	<u>4</u>
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	4
5	5

Total 13

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 4

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 1
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 5

TOTALS 14, 5, 6
 GRAND TOTAL 25

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 0662952 D
 Railroad BNSF
 Milepost 6.62
 Location 8th st S, Moorhead

AADT 11,199
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	<u>6</u>
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	<u>4</u>
5	5

Emergency Services (Police Department, Fire station)

1	<u>1</u>
2	2
3	3
4	4
5	5

Total 14

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 5

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 6

TOTALS 16 / 4 / 6

GRAND TOTAL 26

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 062944 V
 Railroad BNSF
 Milepost 6.37
 Location 11th St S, Moorhead

AADT 4211
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	<u>6</u>
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	<u>5</u>

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 16

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 4

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 6

TOTALS 8,377

GRAND TOTAL 18

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO067931C
Railroad BNSF
Milepost 157.24
Location W 7th St, Morris

AADT 2607
HCADT _____
Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 8

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 10,6,7

GRAND TOTAL 23

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 047933R
Railroad BUSF
Milepost 157.15
Location W 5th St, Morris

AADT 4399
HCADT _____
Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 10

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
Near Misses - reported near misses by railroad; add 1 point each _____

Total 6

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 7

TOTALS 9,7,7
 GRAND TOTAL 23

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 6889544
 Railroad CP
 Milepost B.1
 Location Winnetka Ave, New Hope

AADT 10,399
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	<u>4</u>
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	4
5	5

Total 9

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 7

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 15,477

GRAND TOTAL 26

Crude Oil by Rail Study
 Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 062822G
 Railroad BNSF
 Milepost 189.16
 Location 1st Ave, Perham

AADT 5299
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	<u>4</u>
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	<u>5</u>

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	<u>3</u>
4	4
5	5

Total 15

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 4

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 11 / 11 / 7
 GRAND TOTAL 29

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 062826J
 Railroad BNSF
 Milepost 189.52
 Location NW 6th Ave, Perham

AADT 482
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/4 mile/800 yard radius of crossing)

<u>General Population Density (Per Sq. Mi.)</u>	
<500	1
500-1,500	<u>2</u>
1,500-3,000	3
3,000-5,000	4
>5,000	5
<u>Vulnerable fixed population (hospital, nursing home, prison)</u>	
1	2
2	<u>4</u>
3	6
4	8
5	10
<u>Vulnerable temporary population (schools, city halls)</u>	
1	1
2	2
3	3
4	<u>4</u>
5	5
<u>Emergency Services (Police Department, Fire station)</u>	
1	<u>1</u>
2	2
3	3
4	4
5	5

Total 11

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 4
 Near Misses - reported near misses by railroad; add 1 point each 2

Total 11

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 7,317
 GRAND TOTAL 17

Crude Oil by Rail Study
 Railroad – Highway Grade Crossings Analysis

Location

USDOTNO097910R
 Railroad BNSF
 Milepost 104.58
 Location E Main st, Pipestone

AADT 3597
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	<u>2</u>
1,500-3,000	3
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	<u>1</u>
2	2
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 7

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	<u>6</u>
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 1
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 13,315

GRAND TOTAL 21

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 391204N
 Railroad CR
 Milepost 370.64
 Location Broad St, Redwing

AADT 2749
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	<u>3</u>
4	4
5	5

Total 13

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 1
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 5

TOTALS 8,547

GRAND TOTAL 19

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 0672450
Railroad BNSF
Milepost 72.7
Location 15th Ave SE, St. Cloud

AADT 8,547
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	<u>2</u>
1,500-3,000	3
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	<u>1</u>
2	2
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	<u>1</u>
2	2
3	3
4	4
5	5

Total 8

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 1

Total 5

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 6

TOTALS 11,718

GRAND TOTAL 26

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 082992F
Railroad BNSF
Milepost 4.76
Location W Como Ave, St Paul

AADT 4,351
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	3
3,000-5,000	<u>4</u>
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	4
5	5

Total 11

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
Near Misses - reported near misses by railroad; add 1 point each 1

Total 7

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	<u>7</u>

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 1
Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 8

TOTALS 2,59

GRAND TOTAL 16

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 061138T
 Railroad BNSF
 Milepost 421.6
 Location Hastings Ave, St. Paul Park

AADT 674
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	①
500-1,500	2
1,500-3,000	3
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	①
2	2
3	3
4	4
5	5

Total 2

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	③
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 2

Total 5

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	⑤
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	⑥
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 9

TOTALS 11,6,9

GRAND TOTAL 26

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 097617A
Railroad BUSF
Milepost 147.89
Location 6th St W, Staples

AADT 5,577
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
<u>5</u>	<u>5</u>

Emergency Services (Police Department, Fire station)

1	1
2	2
3	<u>3</u>
4	4
5	5

Total 11

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 2

Total 6

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	<u>4</u>
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 3
Local designation as safety concern (county, city engineer call-out); add 2 points each 2

Total 9

TOTALS 13 / 7 / 7

GRAND TOTAL 27

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 062773 m
Railroad BNSF
Milepost 165.4a
Location 1st St SE, Wadena

AADT 4,631
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	<u>3</u>
4	4
5	5

Total 13

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 3

Total 7

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 7

TOTALS 13,4,7
 GRAND TOTAL 24

Crude Oil by Rail Study
 Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 062775B
 Railroad BNSF
 Milepost 145.54
 Location Jefferson St S, Wadena

AADT 6723
 HCADT _____
 Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	<u>3</u>
4	4
5	5

Total 13

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 4

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 14/6/7

GRAND TOTAL 27

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 062779D
Railroad BNSF
Milepost 165.71
Location 2nd St SW, Wadena

AADT 5638
HCADT _____
Oil Trains/Day 6

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	<u>4</u>
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	<u>4</u>
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	<u>4</u>
4	4
5	5

Total 14

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	<u>4</u>
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
Near Misses - reported near misses by railroad; add 1 point each 2

Total 6

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 15,4,8

GRAND TOTAL 27

Crude Oil by Rail Study
 Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 067834T
 Railroad BUSF
 Milepost 102.54
 Location 7th St SW, Willmar

AADT 2852
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	<u>8</u>
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	<u>3</u>
4	4
5	5

Emergency Services (Police Department, Fire station)

1	<u>1</u>
2	2
3	3
4	4
5	5

Total 15

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 1

Total 4

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	<u>6</u>
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 8

TOTALS 8,37

GRAND TOTAL 18

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 067709F
 Railroad BNSF
 Milepost .46
 Location Trott Ave SW, Willmar

AADT 2351
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	<u>2</u>
1,500-3,000	3
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	<u>6</u>
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	5

Emergency Services (Police Department, Fire station)

1	1
2	2
3	3
4	4
5	5

Total 8

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 7

TOTALS 12,7,8

GRAND TOTAL 27

Crude Oil by Rail Study
 Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 341080X
 Railroad CP
 Milepost 309.65
 Location 5th St, Winona

AADT 6399
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	<u>2</u>
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
<u>5</u>	<u>5</u>

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 12

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	3
0.030	4
0.050	<u>5</u>

Safety Record – Recorded crashes in last 5 years; add 2 points each 2
 Near Misses – reported near misses by railroad; add 1 point each 0

Total 7

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	5
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	<u>6</u>
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 8

TOTALS 9,317
 GRAND TOTAL 19

Crude Oil by Rail Study
 Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 341062 A
 Railroad CP
 Milepost 308.34
 Location Main St, Winona

AADT 7499
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)
 General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5
<u>Vulnerable fixed population (hospital, nursing home, prison)</u>	
1	<u>2</u>
2	4
3	6
4	8
5	10
<u>Vulnerable temporary population (schools, city halls)</u>	
1	1
2	2
3	3
4	<u>4</u>
5	5
<u>Emergency Services (Police Department, Fire station)</u>	
1	1
2	2
3	3
4	4
5	5

Total 9

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 2
 Local designation as safety concern (county, city engineer call-out); add 2 points each _____

Total 7

TOTALS 10 / 3 / 6

GRAND TOTAL 19

Crude Oil by Rail Study Railroad – Highway Grade Crossings Analysis

Location

USDOTNO 341079D
 Railroad CP
 Milepost 309.55
 Location 6th St, Winoona

AADT 7499
 HCADT _____
 Oil Trains/Day 1

Criteria

A. Population Density (area within 1/2 mile/800 yard radius of crossing)

General Population Density (Per Sq. Mi.)

<500	1
500-1,500	2
1,500-3,000	<u>3</u>
3,000-5,000	4
>5,000	5

Vulnerable fixed population (hospital, nursing home, prison)

1	2
2	4
3	6
4	8
5	10

Vulnerable temporary population (schools, city halls)

1	1
2	2
3	3
4	4
5	<u>5</u>

Emergency Services (Police Department, Fire station)

1	1
2	<u>2</u>
3	3
4	4
5	5

Total 10

B. Safety (Safety Index – Per USDOT Crash Prediction Model)

0.005	1
0.008	2
0.010	<u>3</u>
0.030	4
0.050	5

Safety Record – Recorded crashes in last 5 years; add 2 points each 0
 Near Misses - reported near misses by railroad; add 1 point each 0

Total 3

C. Conditions at Crossing (appropriate signal applications & safety-related conditions)

Appropriate safety application for condition (passive signals for low ADT, etc.)	1
Poor physical condition (poor geometry, surface, line of sight)	2
Very poor physical condition (inadequate geometry, stacking distance, line of sight)	3
Multiple crossings (two or more active tracks, especially main line, high speed)	4
Inadequate protection for vehicular traffic (allows drive-arounds, turn onto tracks, etc.)	<u>5</u>
Inappropriate safety application for traffic (passive needs active, 2 quad to 4 quad)	6
Grade separation needed (high speed, 20+ daily trains, high ADT or EMS access)	7

Special Highway Status (school bus route, evacuation, emergency access, designated truck route); add 1 point each 1
 Local designation as safety concern (county, city engineer call-out); add 2 points each 0

Total 6