### APPENDIX A U.S. DOT CROSSING INVENTORY SUMMARY SHEETS



Crossing No.: 906295A Update Reason: Changed Crossing Effective Begin-Date of Record: 06/30/03

Railroad: UP Union Pacific RR Co. [UP ] End-Date of Record:

Initiating Agency *Railroad*Type and Position: *Public At Grade* 

### Part I Location and Classification of Crossing

Division: **DENVER** State: **CO** 

Subdivision:FT.COLLINS SUBCounty:LARIMERBranch or Line Name:FT COLLINS BR.City:In FORT COLLINSRailroad Milepost:0031.72Street or Road Name:LINCOLN AVE

Highway Type & No.: FAU5062

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMER S2Crossing Owner:Latitude:40.5874667ENS Sign Installed:Longitude:-105.0712250

Passenger Service: Lat/Long Source: Actual
Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

RailRoad I.D. No.:

Private Crossing Information:

Category: Public Access: Unknown

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)848-8715 Railroad Contact: State Contact:

### Part II Railroad Information

Number of Daily Train Movements:Less Than One Movement Per Day:NoTotal Trains:3Total Switching:1Day Thru:1Typical Speed Range Over Crossing: From5to 10 mphMaximum Time Table Speed:10

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 06/30/03

No

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

906295A

Crossing

0 Highway Stop Signs: 0 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Stop Lines and RR Xing Other Signs: Pavement Markings: 0 Specify:

Symbols

Train Activated Devices:

Gates: 3 4 Quad or Full Barrier:

Mast Mounted FL: 0 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

Specify Other Flashing Lights: Other Flashing Lights: 0

Highway Traffic Signals: 0 Wigwags: Bells: 3

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with No Traffic Light

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Industrial Smallest Crossing Angle: 60 to 90 Degrees

Are Truck Pullout Lanes Present?

Number of Traffic Lanes

Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Concrete If Other:

2

Nearby Intersecting

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? No

Is Commercial Power Yes

Part V: Highway Information

Highway System: Other FA Highway - Not NHS Functional Classification of **Urban Collector** Road at Crossing:

Is Crossing on State No

Highway System:

Annual Average Daily 004850 AADT Year: 1994 Traffic (AADT):

**Estimated Percent Trucks:** 13 Avg. No of School Buses per Day: 0

Crossing No.: 906296G Update Reason: Changed Crossing Effective Begin-Date of Record: 06/30/03

Railroad: UP Union Pacific RR Co. [UP ] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: CENTRAL REGION State: CO

Subdivision: WYOMING DIV. County: LARIMER

Branch or Line Name: FT COLLINS BR. City: In FORT COLLINS

Railroad Milepost: 0031.93 Street or Road Name: LINDEN EOJEFFERSN

FAU5049

RailRoad I.D. No.: Highway Type & No.:

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMER S2Crossing Owner:Latitude:40.5893006ENS Sign Installed:Longitude:-105.0738750

Passenger Service: Lat/Long Source: Actual
Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access: Unknown

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)848-8715 Railroad Contact: State Contact:

### Part II Railroad Information

Number of Daily Train Movements:Less Than One Movement Per Day:NoTotal Trains:2Total Switching:0Day Thru:1Typical Speed Range Over Crossing: From5to 10mphMaximum Time Table Speed:10

Type and Number of Tracks: Main: 1 Other 1 Specify: SIDE

Continued

Effective Begin-Date of Record: 06/30/03

No

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 906296G

Highway Stop Signs: 0 Crossbucks: 1

Advanced Warning: Yes Hump Crossing Sign:

Other Signs: 0 Pavement Markings: No Markings Specify:

Train Activated Devices:

4 Quad or Full Barrier: Gates: 3 Mast Mounted FL: 2 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: Bells: 2

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with No Traffic Light

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Industrial 60 to 90 Degrees Smallest Crossing Angle:

Number of Traffic Lanes Are Truck Pullout Lanes Present? 2 Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Concrete and Rubber If Other:

Nearby Intersecting

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? No

Is Commercial Power Yes

Part V: Highway Information

Highway System: Other FA Highway - Not NHS Functional Classification of **Urban Collector** Road at Crossing:

Is Crossing on State No

Highway System:

Annual Average Daily 002800 AADT Year: 1994 Traffic (AADT):

**Estimated Percent Trucks:** 05 Avg. No of School Buses per Day: 0

Crossing No.: 244644C Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Positiion: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision:FRONT RANGECounty:LARIMERBranch or Line Name:DEN UD-WENDOVERCity:In FORT COLLINSRailroad Milepost:0075.09Street or Road Name:LINDEN ST

Railroad Milepost: 0075.09 Street or Road Name: LINDEN ST RailRoad I.D. No.: 0476 Highway Type & No.: FAU5049

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMER S2Crossing Owner:Latitude:40.5956920ENS Sign Installed:Longitude:-105.0687340

Passenger Service: None Lat/Long Source: Actual
Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 20 mph Maximum Time Table Speed:

20

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244644C

Crossbucks: 0 Highway Stop Signs: 0

Advanced Warning: Yes Hump Crossing Sign:

Pavement Markings: Stop Lines and RR Xing Other Signs: 0 Specify:

Symbols

Train Activated Devices:

Gates: 2 4 Quad or Full Barrier:

Mast Mounted FL:2Total Number FL Pairs:0Cantilevered FL (Over):0Cantilevered FL (Not over):0

Other Flashing Lights: 0 Specify Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: 0 Bells: 1

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with No Traffic Light

Train Signals? Interconnection/Preemption:

Part IV: Physical Characteristics

Type of Development: Commercial Smallest Crossing Angle: 60 to 90 Degrees

Number of Traffic Lanes 2 Are Truck Pullout Lanes Present? No

Crossing Railroad:

Is Highway Paved?

Yes

Crossing Surface: Concrete If Other:

Nearby Intersecting

Highway? N/A Is it Signalized?

Does Track Run Down a

Street? No Is Crossing Illuminated?

Is Commercial Power Yes

Part V: Highway Information

Highway System: Other FA Highway - Not NHS Functional Classification of Road at Crossing: Urban Collector

Is Crossing on State

Highway System:

Annual Average Daily Traffic (AADT): AADT Year: 1989

Estimated Percent Trucks: 09 Avg. No of School Buses per Day: 0

Crossing No.: 244643V Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision:FRONT RANGECounty:LARIMERBranch or Line Name:DEN UD-WENDOVERCity:In FORT COLLINSRailroad Milepost:0074.63Street or Road Name:N COLLEGE AVE

RailRoad I.D. No.: 0476 Highway Type & No.: FAP 287

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMER S2Crossing Owner:Latitude:40.5930960ENS Sign Installed:Longitude:-105.0767460

Passenger Service:NoneLat/Long Source:ActualAvg Passenger Train Count:0Quiet Zone:No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06

No

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244643V

0 Highway Stop Signs: 0 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Stop Lines and RR Xing Other Signs: 0 Pavement Markings: Specify:

Symbols

Train Activated Devices:

4 Quad or Full Barrier: Gates: 4

Mast Mounted FL: 4 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 4 Wigwags: Bells: 2

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: **Constant Warning Time** 

Track Equipped with No Traffic Light Simultaneous Preemption

Are Truck Pullout Lanes Present?

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial 60 to 90 Degrees Smallest Crossing Angle:

Number of Traffic Lanes Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Rubber If Other:

Nearby Intersecting

N/A Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? No

Is Commercial Power Yes

Part V: Highway Information

Highway System: Other National Highway Functional Classification of Urban Other Principal Road at Crossing:

Is Crossing on State Yes

Highway System:

Annual Average Daily 020800 AADT Year: 1996 Traffic (AADT):

**Estimated Percent Trucks:** 09 Avg. No of School Buses per Day: 0

Crossing No.: 244642N Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision: FRONT RANGE County: LARIMER

Branch or Line Name: DEN UD-WENDOVER City: In FORT COLLINS

Railroad Milepost: 0074.52 Street or Road Name: CHERRY ST

RailRoad I.D. No.: 0476 Highway Type & No.:

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5921610ENS Sign Installed:Longitude:-105.0783300

Passenger Service: None Lat/Long Source: Actual Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244642N

0 Highway Stop Signs: 0 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Stop Lines and RR Xing Other Signs: 0 Pavement Markings: Specify:

Symbols

Train Activated Devices:

4 Quad or Full Barrier: Gates: 4

Mast Mounted FL: 4 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: Bells: 2

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: **Constant Warning Time** 

Are Truck Pullout Lanes Present?

No

Track Equipped with Yes Traffic Light

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial Smallest Crossing Angle: 30 to 59 Degrees

Number of Traffic Lanes Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Concrete If Other:

Nearby Intersecting

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? No

Is Commercial Power Yes

Part V: Highway Information

Highway System: Functional Classification of Non-Federal-aid Urban Minor Arterial Road at Crossing:

Is Crossing on State No

Highway System:

Annual Average Daily

010000 AADT Year: 1994 Traffic (AADT):

**Estimated Percent Trucks:** 05 Avg. No of School Buses per Day: 0

Crossing No.: 244641G Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision: FRONT RANGE County: LARIMER

Branch or Line Name: DEN UD-WENDOVER City: In FORT COLLINS

Railroad Milepost: 0074.42 Street or Road Name: MAPLE ST

RailRoad I.D. No.: 0476 Highway Type & No.:

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5907930ENS Sign Installed:Longitude:-105.0788770

Passenger Service: None Lat/Long Source: Actual Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 1 Specify: YARD

Continued

Effective Begin-Date of Record: 09/20/06

No

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244641G

0 Highway Stop Signs: 0 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Symbols

Stop Lines and RR Xing Other Signs: TWO TRACKS Pavement Markings: 2 Specify:

0

Are Truck Pullout Lanes Present?

Train Activated Devices:

4 Quad or Full Barrier: Gates: 0

Mast Mounted FL: 2 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: Bells: 2

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with Yes Traffic Light

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial 60 to 90 Degrees Smallest Crossing Angle:

Number of Traffic Lanes

Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Concrete If Other:

Nearby Intersecting

N/A Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? Yes

Is Commercial Power Yes

Part V: Highway Information

Highway System: Functional Classification of Non-Federal-aid Urban Local Road at Crossing:

Is Crossing on State

No Highway System:

Annual Average Daily 003100 AADT Year: 1989 Traffic (AADT):

**Estimated Percent Trucks:** 00 Avg. No of School Buses per Day: 0

Crossing No.: 244640A Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision:FRONT RANGECounty:LARIMERBranch or Line Name:DEN UD-WENDOVERCity:In FORT COLLINSRailroad Milepost:0074.30Street or Road Name:LAPORTE AVE

RailRoad I.D. No.: 0476 Highway Type & No.: FAU5054

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5889400ENS Sign Installed:Longitude:-105.0788930

 Passenger Service:
 None
 Lat/Long Source:
 Actual

 Avg Passenger Train Count:
 0
 Quiet Zone:
 No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06

Are Truck Pullout Lanes Present?

No

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244640A

0 Highway Stop Signs: 0 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Stop Lines and RR Xing Other Signs: 0 Pavement Markings: Specify:

Symbols

Train Activated Devices:

4 Quad or Full Barrier: Gates: 0

Mast Mounted FL: 2 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 2 Wigwags: Bells: 2

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with Yes Traffic Light Simultaneous Preemption

If Other:

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial 60 to 90 Degrees Smallest Crossing Angle:

Number of Traffic Lanes

Crossing Railroad:

Yes

Crossing Surface: Concrete

Nearby Intersecting

Is Highway Paved?

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? Yes

Is Commercial Power Yes

Part V: Highway Information

Highway System: Other FA Highway - Not NHS Functional Classification of Urban Minor Arterial Road at Crossing:

Is Crossing on State No

Highway System:

Annual Average Daily 007400 AADT Year: 1994 Traffic (AADT):

**Estimated Percent Trucks:** 05 Avg. No of School Buses per Day: 0

Crossing No.: 244639F Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision:FRONT RANGECounty:LARIMERBranch or Line Name:DEN UD-WENDOVERCity:In FORT COLLINSRailroad Milepost:0074.16Street or Road Name:MOUNTAIN AVE

RailRoad I.D. No.: 0476 Highway Type & No.: FAU5050

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5870320ENS Sign Installed:Longitude:-105.0789100

Passenger Service: None Lat/Long Source: Actual Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06

No

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244639F

0 Highway Stop Signs: 0 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Stop Lines and RR Xing Other Signs: 0 Pavement Markings: Specify:

Symbols

Train Activated Devices:

4 Quad or Full Barrier: Gates: 0

Mast Mounted FL: 2 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: Bells: 2

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with Yes Traffic Light Simultaneous Preemption

Are Truck Pullout Lanes Present?

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial 60 to 90 Degrees Smallest Crossing Angle:

Number of Traffic Lanes

Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Concrete If Other:

Nearby Intersecting

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? Yes

Is Commercial Power Yes

Part V: Highway Information

Highway System: Other FA Highway - Not NHS Functional Classification of **Urban Collector** 

Road at Crossing: Is Crossing on State

No Highway System:

Annual Average Daily 007600 AADT Year: 1994 Traffic (AADT):

**Estimated Percent Trucks:** 05 Avg. No of School Buses per Day: 0

Crossing No.: 244638Y Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision: FRONT RANGE County: LARIMER

Branch or Line Name: DEN UD-WENDOVER City: In FORT COLLINS

Railroad Milepost: 0074.06 Street or Road Name: OAK ST RailRoad I.D. No.: 0476 Highway Type & No.: 1

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMER S2Crossing Owner:Latitude:40.5856130ENS Sign Installed:Longitude:-105.0789100

Passenger Service:NoneLat/Long Source:ActualAvg Passenger Train Count:0Quiet Zone:No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06 Crossing 244638Y

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

0 Highway Stop Signs: 2 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Stop Lines and RR Xing Other Signs: 0 Pavement Markings: Specify:

Symbols

Train Activated Devices:

4 Quad or Full Barrier: Gates: 0

Mast Mounted FL: 0 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: Bells: 0

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: None

Track Equipped with No Traffic Light Simultaneous Preemption

Are Truck Pullout Lanes Present?

No

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial 60 to 90 Degrees Smallest Crossing Angle:

Number of Traffic Lanes

Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Concrete If Other:

Nearby Intersecting

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? Yes

Is Commercial Power Yes

Part V: Highway Information

Highway System: Functional Classification of Non-Federal-aid Urban Local Road at Crossing:

Is Crossing on State

No Highway System:

Annual Average Daily 003500 AADT Year: 1994 Traffic (AADT):

**Estimated Percent Trucks:** 05 Avg. No of School Buses per Day: 0

Crossing No.: 244637S Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision: FRONT RANGE County: LARIMER

Branch or Line Name: DEN UD-WENDOVER City: In FORT COLLINS

Railroad Milepost: 0073.97 Street or Road Name: OLIVE ST

RailRoad I.D. No.: 0476 Highway Type & No.:

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5842290ENS Sign Installed:Longitude:-105.0789110

Passenger Service:NoneLat/Long Source:ActualAvg Passenger Train Count:0Quiet Zone:No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244637S

Crossbucks: 0 Highway Stop Signs: 0

Advanced Warning: Yes Hump Crossing Sign:

Pavement Markings: Stop Lines and RR Xing Other Signs: 0 Specify: Symbols

5

Train Activated Devices:

Gates: 0 4 Quad or Full Barrier:

Mast Mounted FL:2Total Number FL Pairs:0Cantilevered FL (Over):0Cantilevered FL (Not over):0

Other Flashing Lights: 0 Specify Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: 0 Bells: 2

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with No Traffic Light Simultaneous Preemption

Are Truck Pullout Lanes Present?

No

1989

Train Signals? Interconnection/Preemption:

Part IV: Physical Characteristics

Type of Development: Commercial Smallest Crossing Angle: 60 to 90 Degrees

Number of Traffic Lanes

Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Asphalt If Other:

No

Nearby Intersecting

Highway? Less than 75 feet Is it Signalized?

Does Track Run Down a

Street? Yes Is Crossing Illuminated?

Is Commercial Power Yes

Part V: Highway Information

Highway System: Non-Federal-aid Functional Classification of Urban Local Road at Crossing:

Is Crossing on State

Highway System:

Annual Average Daily
Traffic (AADT):

AADT Year:

Estimated Percent Trucks: 00 Avg. No of School Buses per Day: 0

Crossing No.: 244636K Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision:FRONT RANGECounty:LARIMERBranch or Line Name:DEN UD-WENDOVERCity:In FORT COLLINSRailroad Milepost:0073.87Street or Road Name:MAGNOLIA ST

RailRoad I.D. No.: 0476 Highway Type & No.:

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5828500ENS Sign Installed:Longitude:-105.0789180

Passenger Service: None Lat/Long Source: Actual Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued Effective Begin-Date of Record: 09/20/06

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244636K

2 Highway Stop Signs: 2 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Other Signs: 0 Pavement Markings: Stop Lines Specify:

Are Truck Pullout Lanes Present?

No

Train Activated Devices:

4 Quad or Full Barrier: Gates: 0 Mast Mounted FL: 0 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: Bells: 0

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: None

Track Equipped with No Traffic Light

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial 60 to 90 Degrees Smallest Crossing Angle:

Number of Traffic Lanes Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Asphalt If Other:

Nearby Intersecting

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? Yes

Is Commercial Power Yes

Part V: Highway Information

Highway System: Functional Classification of Non-Federal-aid Urban Local Road at Crossing:

Is Crossing on State

No Highway System:

Annual Average Daily 003800

AADT Year: 1989 Traffic (AADT):

**Estimated Percent Trucks:** 10 Avg. No of School Buses per Day: 0

Crossing No.: 244635D Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision: FRONT RANGE County: LARIMER

Branch or Line Name: DEN UD-WENDOVER City: In FORT COLLINS

Railroad Milepost: 0073.78 Street or Road Name: MULBERRY ST

RailRoad I.D. No.: 0476 Highway Type & No.: FAU5046

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5814940ENS Sign Installed:Longitude:-105.0789240

Passenger Service: None Lat/Long Source: Actual Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06

No

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244635D

Crossbucks: 0 Highway Stop Signs: 0

Advanced Warning: Yes Hump Crossing Sign:

Pavement Markings: Stop Lines and RR Xing Other Signs: 0 Specify:

Symbols

Train Activated Devices:

Gates: 0 4 Quad or Full Barrier:

Mast Mounted FL:2Total Number FL Pairs:0Cantilevered FL (Over):0Cantilevered FL (Not over):0

Other Flashing Lights: 0 Specify Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: 0 Bells: 2

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with Yes Traffic Light Simultaneous Preemption

If Other:

Are Truck Pullout Lanes Present?

Train Signals? Interconnection/Preemption:

Part IV: Physical Characteristics

Type of Development: Commercial Smallest Crossing Angle: 60 to 90 Degrees

Number of Traffic Lanes

Crossing Railroad:

Yes

5

Crossing Surface: Asphalt

Nearby Intersecting

Is Highway Paved?

Highway? Less than 75 feet Is it Signalized?

No

Does Track Run Down a

Street? Yes Is Crossing Illuminated?

Is Commercial Power Yes

Part V: Highway Information

Highway System: Other FA Highway - Not NHS Functional Classification of Road at Crossing: Urban Minor Arterial

Is Crossing on State

Highway System:

Annual Average Daily Traffic (AADT): 014500 AADT Year: 1994

Estimated Percent Trucks: 05 Avg. No of School Buses per Day: 0

Crossing No.: 244634W Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision:FRONT RANGECounty:LARIMERBranch or Line Name:DEN UD-WENDOVERCity:In FORT COLLINSRailroad Milepost:0073.68Street or Road Name:MYRTLE ST

RailRoad I.D. No.: 0476 Highway Type & No.:

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5801200ENS Sign Installed:Longitude:-105.0789230

Passenger Service: None Lat/Long Source: Actual Avg Passenger Train Count: 0 Quiet Zone: No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06

No

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

Crossing 244634W

2 Highway Stop Signs: 2 Crossbucks:

Advanced Warning: Yes Hump Crossing Sign:

Stop Lines and RR Xing Other Signs: 0 Pavement Markings: Specify:

Symbols

Train Activated Devices:

4 Quad or Full Barrier: Gates: 0

Mast Mounted FL: 0 Total Number FL Pairs: 0 Cantilevered FL (Over): 0 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: Bells: 0

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: None

Track Equipped with No Traffic Light

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial 60 to 90 Degrees Smallest Crossing Angle:

Are Truck Pullout Lanes Present?

Number of Traffic Lanes 3 Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Asphalt If Other:

Nearby Intersecting

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? Yes

Is Commercial Power Yes

Part V: Highway Information

Highway System: Functional Classification of Non-Federal-aid Urban Local Road at Crossing:

Is Crossing on State

No Highway System:

Annual Average Daily 001000 AADT Year: 1989 Traffic (AADT):

**Estimated Percent Trucks:** 05 Avg. No of School Buses per Day: 0

Crossing No.: 244633P Update Reason: Changed Crossing Effective Begin-Date of Record: 09/20/06

Railroad: BNSF BNSF Rwy Co. [BNSF] End-Date of Record:

Initiating Agency Railroad Type and Position: Public At Grade

### Part I Location and Classification of Crossing

Division: COLORADO State: CO

Subdivision:FRONT RANGECounty:LARIMERBranch or Line Name:DEN UD-WENDOVERCity:In FORT COLLINSRailroad Milepost:0073.54Street or Road Name:LAUREL ST

RailRoad I.D. No.: 0476 Street or Road Name: LAUREL ST Highway Type & No.: FAU5042

Nearest RR Timetable Stn: FT COLLINS HSR Corridor ID:

Parent Railroad:County Map Ref. No.:LARIMR S2Crossing Owner:Latitude:40.5780950ENS Sign Installed:Longitude:-105.0789310

 Passenger Service:
 None
 Lat/Long Source:
 Actual

 Avg Passenger Train Count:
 0
 Quiet Zone:
 No

Adjacent Crossing with Separate Number:

#### Private Crossing Information:

Category: Public Access:

Specify Signs: Specify Signals:

ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:

State Use:

Narrative:

Emergency Contact: (800)832-5452 Railroad Contact: (913)551-4540 State Contact:

### Part II Railroad Information

Number of Daily Train Movements:

Less Than One Movement Per Day:

No
Total Trains:

15 Total Switching:

0 Day Thru:

8
Typical Speed Range Over Crossing: From

1 to 49 mph Maximum Time Table Speed:

49

Type and Number of Tracks: Main: 1 Other 0 Specify:

Continued

Effective Begin-Date of Record: 09/20/06 Crossing 244633P

End-Date of Record:

### Part III: Traffic Control Device Information

Signs:

0 Highway Stop Signs: 0 Crossbucks:

Advanced Warning: No Hump Crossing Sign:

Other Signs: 0 Pavement Markings: Stop Lines Specify:

Are Truck Pullout Lanes Present?

No

Train Activated Devices:

4 Quad or Full Barrier: Gates: 0

Mast Mounted FL: 2 Total Number FL Pairs: 0 Cantilevered FL (Over): 2 Cantilevered FL (Not over): 0

0 Specify Other Flashing Lights: Other Flashing Lights:

Highway Traffic Signals: 0 Wigwags: Bells: 1

Other Train Activated Special Warning Devices Not

Warning Devices: Train Activated:

Channelization: Type of Train Detection: DC/AFO

Track Equipped with No Traffic Light

Interconnection/Preemption: Train Signals?

Part IV: Physical Characteristics

Type of Development: Commercial 60 to 90 Degrees Smallest Crossing Angle:

Number of Traffic Lanes

Crossing Railroad:

Is Highway Paved? Yes

Crossing Surface: Asphalt If Other:

Nearby Intersecting

Less than 75 feet Highway? Is it Signalized?

Does Track Run Down a

Is Crossing Illuminated? Street? Yes

Is Commercial Power Yes

Part V: Highway Information

Highway System: Other FA Highway - Not NHS Functional Classification of Urban Minor Arterial Road at Crossing:

Is Crossing on State No

Highway System:

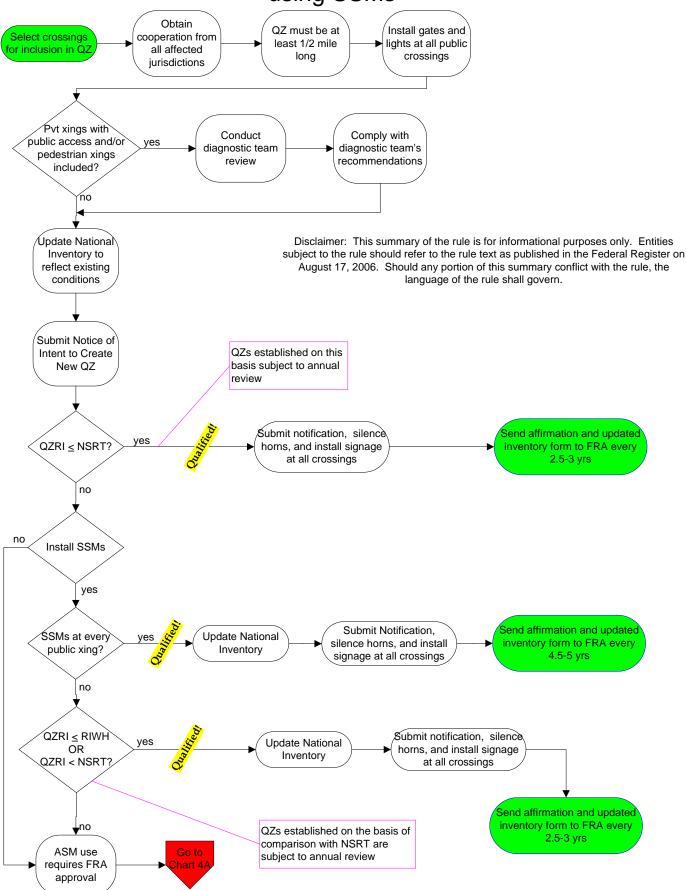
Annual Average Daily 015800 AADT Year: 1994 Traffic (AADT):

**Estimated Percent Trucks:** 05 Avg. No of School Buses per Day: 0

### APPENDIX B QUIET ZONE SUMMARY FLOWCHART

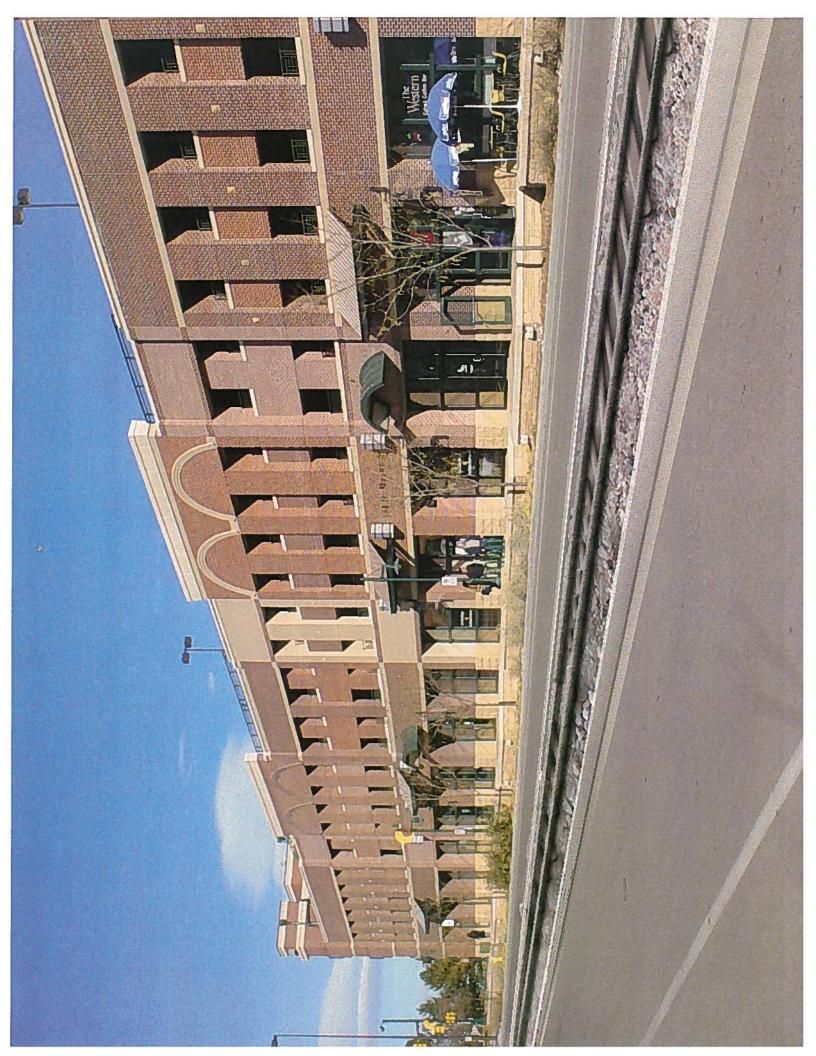


# Chart 3 - Creating a New Quiet Zone or New Partial Quiet Zone using SSMs



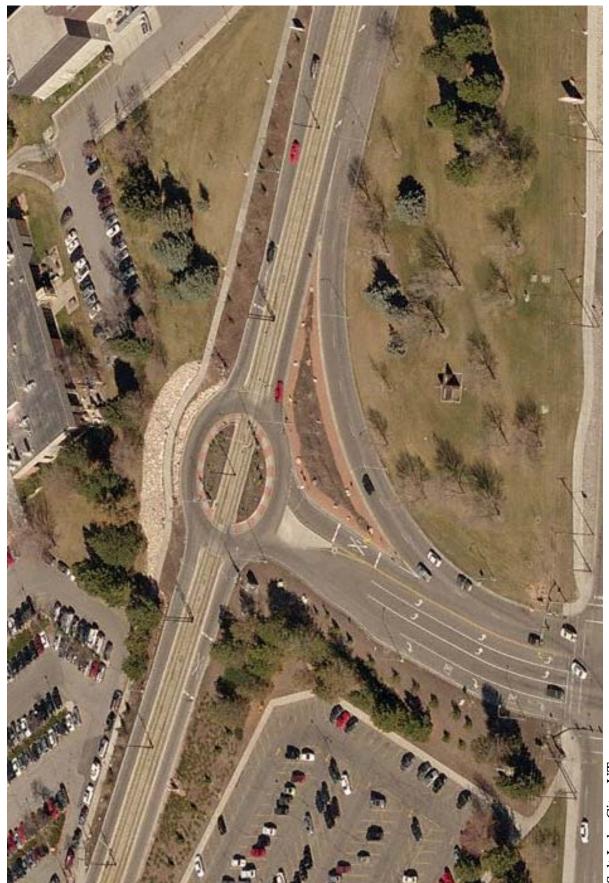
### APPENDIX C TRACK ISOLATION RENDERING



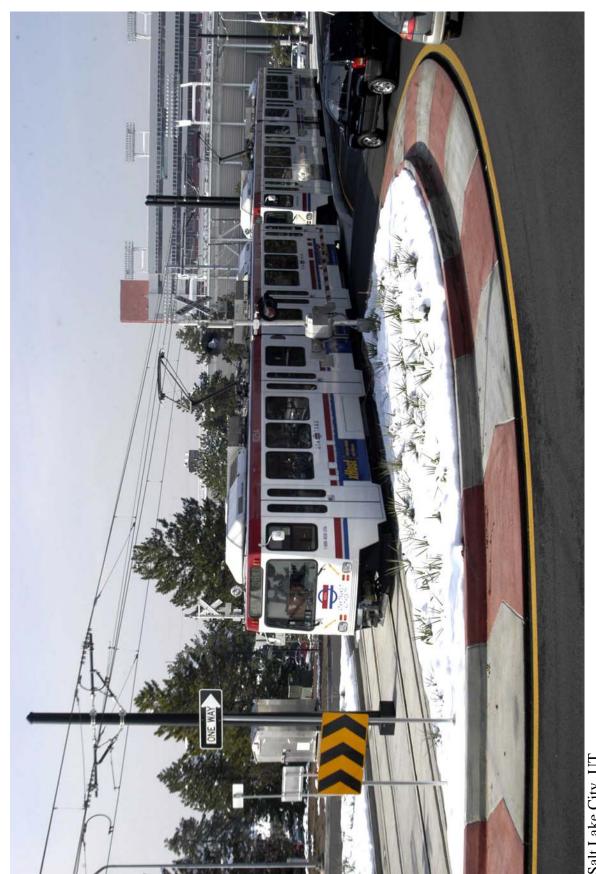


### APPENDIX D RAILROAD CROSSINGS THROUGH ROUNDABOUTS



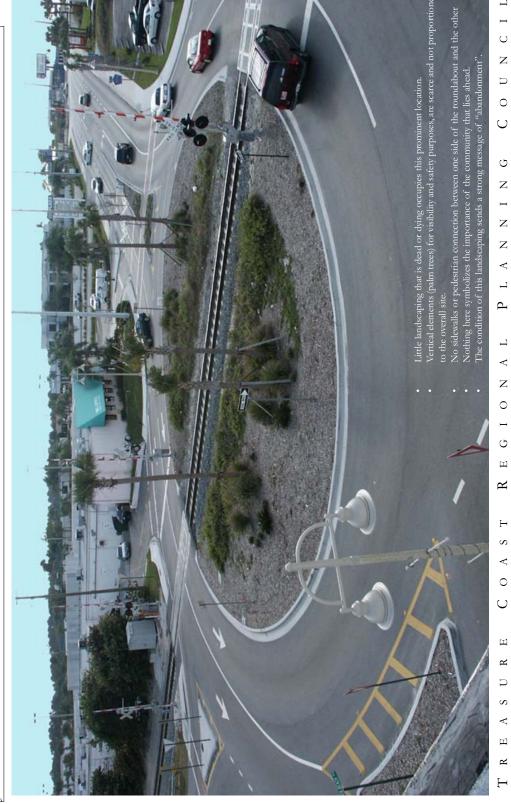


Salt Lake City, UT



Salt Lake City, UT

JENSEN BEACH BOULEVARD ROUNDABOUT: EXISTING CONDITION



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# APPENDIX E FIELD DIAGNOSTIC REVIEW SUMMARIES





# engineering paths to transportation solutions

Downtown Development Authority/City of Fort Collins/Union Pacific Railroad Quiet Zone Field Diagnostic Review Lincoln Avenue-UPRR Crossing Linden Street – UPRR Crossing

March 9, 2010 1:30 PM

### **ATTENDANCE**

See attached sign in sheets

### **DIAGNOSTIC SUMMARY**

The following summarizes the group's discussion regarding existing railroad crossing features and possible railroad warning device installation for Quiet Zone establishment at each crossing.

### Lincoln Ave and Linden St -

- 1. Lincoln Ave. and Linden St. crossings are both currently equipped with HXP3 constant warning time circuitry.
- 2. UPRR indicated this circuitry may not support an upgrade to 4-quadrant gates or installation of wayside horns. It is likely the bungalow, gates and circuitry would need to be upgraded.
- 3. UPRR stated:
  - a. recent installations Castle Rock ran \$350k to \$370k
  - b. to budget \$400k for each crossing
  - c. the majority of the cost is for the bungalow and circuitry
  - d. gate installation runs about \$8000 (without maintenance), so it may be cost effective to install the 4-quad gates.
- 4. UPRR will not do any additional work on these crossings following this Diagnostic Review without receipt of a Preliminary Engineering (PE) Letter indicating the DDA/City will reimburse the UPRR for any design engineering or cost estimating. Initial costs run \$5000 for circuitry design and \$10,000 for design associated with Wayside Horn installation.
- 5. DDA indicated the timeline for Quiet Zone improvements is dependant upon funding. The study currently underway is funded, and our current efforts are to determine through Diagnostic Reviews with the agencies of jurisdiction what possible Quiet Zone improvements would be acceptable. The DDA and City are investigating funding options for implementation.

### Lincoln Ave -

1. UPRR indicated the 12" lights are LED lights. The gates lights are incandescents.

### Linden St -

- 1. Linden Street corridor is being designed for street improvements.
- 2. The City would like to look at an alternative to remove the existing medians. PUC indicated removal of the medians and mast-mounted flashers would reduce the level of safety warning. There would need to be some replacement installation for the median mast-mounted flashers if the medians are removed.
- 3. UPRR suggested cantilever lights over the street approaches may be an option.
- 4. The City stated they would like to pursue the utility work associated with the Linden Street project later this year.

Downtown Development Authority/City of Fort Collins/Union Pacific Railroad Quiet Zone Field Diagnostic Review Lincoln Avenue-UPRR Crossing Linden Street – UPRR Crossing Page 2

March 9, 2010 1:30 PM

- 5. PUC encouraged the City to consider the potential future placement of elements for Quiet Zone compliance in the Linden Street project design so as to avoid the need for relocation or reconstruction of facilities at a later date. Sidewalks need to be routed around the back side of gates, with 5 foot of clear distance to allow space for the counterbalance of the gate. The possible placement of entrance and exit gates (as for a 4-quadrant installation) would cause the sidewalk to be detached for a longer length across the crossing to get past both gates, prior to being returned to the back of curb.
- 6. The City stated the sidewalks will be 15 feet wide, on both the north and south sides of the roadway. These are sidewalks only. Bike lanes will remain on the street.
- 7. It appears the concrete crossing material length is the full width of the Linden Street roadway easement. Therefore, sidewalks would be constructed leading up to either side of the existing crossing material.
- 8. PUC stated the existing medians appear to be narrower than current MUTCD standards. The medians, if to remain, would need to be widened to current MUTCD standards.
- 9. UPRR asked if the City would need any additional easement width across the UPRR tracks for the sidewalks. The City will not need any additional easement width. The sidewalks will be within the existing roadway easement.
- 10. UPRR stated they like to have 3 additional feet of concrete crossing material beyond a sidewalk. If this concrete crossing material extends beyond the City's easement, the City does not need to obtain an easement for that crossing material.
- 11. The UPRR will forward a .pdf of their standard flasher pole location and acceptable distances to the DDA for their use.
- 12. PUC indicated the recently issued 2009 version of the MUTCD requires either stop signs or yield signs along with cross bucks. This version of the MUTCD will likely be adopted prior to construction of the Linden Street improvements. Design should consider requirements of the 2009 MUTCD.

### **DETERMINATION**

The group agreed that at both the Lincoln Avenue crossing and Linden Street crossing, the two Quiet Zone Supplemental Safety Measure (SSM) options remain viable. The two options are:

- 1. 4-quadrant gates
- 2. Wayside horns

Downtown Development Authority/City of Fort Collins/UPRR Quiet Zone Diagnostic: UPRR @ Linden and UPRR @ Lincoln

Fort Collins, Colorado March 9, 2010 1:30 PM

Name	Organization	Phone	E-Mail
PAM FISCHHAKER	PUC	363-874-2529	Jamela, Fischhabere dora, state, co. 15
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Sephanie Sangaline	Styphanie Sangaline Floburg Holt& Willing	3037211940	Stephame, sangline
Bill BA1665	UNION PAUFIC AR	7079-050-705	WE WLINGLES OUP, COM
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Jac 0   500	CoFC	9097-17860Lb	Je Bon Ofcgowcon
Kelly Abara	UPRR	303-405-5039	KAABARAY OW CON
John FREISE	UPRK	34-331-0659- HRAGE QUPEON	HABS Colco
WARD Shan Gord	aska - Ten Pic	970-321-6826	970-321-6826 WSTAN God a fam. con
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Downtown Development Authority/City of Fort Collins/UPRR Quiet Zone Diagnostic: UPRR @ Linden and UPRR @ Lincoln

Fort Collins, Colorado March 9, 2010 1:30 PM

E-Mail	Aklinger e leger co.n					
Phone	1159 122 026					
Organization	althor City of FC					
Name	PEAN KLINENSA					



# engineering paths to transportation solutions

Downtown Development Authority/City of Fort Collins/BNSF Railway
Fort Collins Quiet Zone Office Meeting & Field Diagnostic Review
April 15, 2010
Traffic Operations Center Conference Room & Site Visits
8:00 AM
Print Date: April 23, 2010 Revision Date: April 26, 2010

### ATTENDANCE

See attached sign in sheet

### **HANDOUTS**

- 1. Partial Draft Report (Crossing Existing Conditions, Concept Crossing Improvement options, Track Isolation Renderings, Roundabout information)
- 2. FRA Inventory Reports for each crossing
- 3. Michigan State Rail Crossing presentation on Retractable Bollards
- 4. Mason 2-Way Installation Exhibits (from PUC filing)

### **DIAGNOSTIC SUMMARY**

### **Opening Discussion:**

- 1. Self introductions were made
- 2. Handout material was identified for the group's reference during discussions
- 3. Anne (DDA) and Matt (City) gave a brief overview of the limits of this Quiet Zone Study
  - a. Current DDA boundary limits include the crossings identified to be reviewed as part
    of this diagnostic, however Myrtle and Laurel are outside of the current DDA
    boundary
  - b. The Quiet Zone Study is funded. Funding has not yet been for the implementation of the Quiet Zone
  - c. The purpose of this diagnostic is to determine what options are viable for the crossings within this study, to assist the DDA and City in refining a concept level cost estimate for use in pursuing funding
- 4. Rick (FHU) provided a brief overview of the current testing of retractable bollards being conducted in Michigan. Retractable bollards are not currently accepted by the PUC as a traffic control device. Proposed use of retractable bollards for isolation of track associated with Quiet Zone establishment would require an application to the FRA, monitoring and reporting as an Alternative Safety Measure (ASM).
- 5. Steph (FHU) provided background specifically regarding the downtown corridor regarding the imminent conversion of Mason Street to 2-way operation and the planned installation of additional warning devices along the corridor. This 2-way scenario will be

Fort Collins, Colorado April 15, 2010 8:00 AM

Page 2 Revised April 26, 2010

an as-built condition when Quiet Zone treatments are implemented and should be kept in mind when reviewing the downtown crossings as part of this diagnostic review.

- 6. Andy (BNSF) stated that primary reasons for train horn blowing within established Quiet Zones is due to trespassing, presence of roadway workers, or train switching in the vicinity of a crossing. Howard (FRA) reiterated Andy's comments, emphasizing that trespassing is a big issue.
- 7. The group discussed the need for track isolation between the cross streets through downtown Mason as a measure to discourage pedestrian/bike movements over the tracks between crossings. These movements cause locomotive engineers to sound the horn even in established Quiet Zones as a warning device for those crossing the tracks.

The initial crossing concepts included the placement of curb and gutter along the track envelope, and allowing removal of pavement and track rehabilitation to restore the standard open ballast condition. This, as a minimum treatment between cross streets, would effectively prevent vehicles from crossing to the opposite side of the tracks except at cross streets. The issue with only curb, gutter and the open ballast section is the possibility of pedestrian slip, trip or fall within the track envelope in an attempt to cross mid-block. This would be a liability to the City .

The group discussed other features, in addition to the curb, gutter and open ballast condition, that may discourage mid-block crossing, as follows:

<b>Treatment Option</b>	Pros	Cons
Fence along one side of the tracks between cross streets	<ol> <li>Discourages mid block crossing by pedestrians and bikes</li> <li>Combined with crossing treatments, blocks the entire corridor during presence of a train</li> </ol>	<ol> <li>Inhibits downtown circulation of pedestrians and bikes for retail businesses</li> <li>Aesthetically unattractive</li> <li>Divides the downtown area</li> </ol>
Seat/planter walls along the outside of sidewalks and elimination of parking (i.e. between Laporte & Mountain – east side)	<ol> <li>Pedestrians less likely to climb over seat/planter walls to cross streets mid-block</li> <li>Effectively discourages pedestrians on the opposite side of the street from crossing mid-block as there is no sidewalk access except at cross streets</li> </ol>	<ol> <li>Lack of parking and inability to access businesses has detrimental economic effects on businesses within this type of treatment</li> <li>Creates a "sterile" environment with more hard infrastructure</li> </ol>

8. Andy (BNSF) stated the BNSF will oppose any applications for roundabouts at the crossings through downtown Fort Collins. The group discussed the concern of traffic queuing back over the tracks and how this would be cleared. While there are existing roundabouts with railroad tracks through them in other states, no one in the group had

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any information regarding how the roundabouts are working or if there have been any incidents

- 9. Generally with regard to pedestrian and bicycle movements, it is anticipated that upon conversion to 2-way operation, these movements may become more cumbersome for users to cross 2 directions of vehicle traffic as well as the freight rail tracks. It was suggested that the 2-way operation be monitored for a period of time to determine if this is the case, prior to finalizing recommendations for mid-block treatments to discourage this behavior
- 10. An FRA application for Quiet Zone establishment along Mason Street must address treatments at all of the public at-grade crossings. The FRA Final Rule does not address treatments between public at-grade crossings.
- 11. The PUC rule currently indicates that pedestrian crossings of a mainline track must be grade separated. Therefore if any crossings are proposed for closure along Mason Street the associated pedestrian sidewalks would also need to be closed or grade separated. The group questioned if the Commission would consider allowing closure of the roadway portion, and allowing the sidewalks to remain open, provided fencing was installed along one side of the tracks, and the sidewalk crossings treated with pedestrian scale warning devices. Pam (PUC) indicated she did not know how the Commission may respond to that request. Generally the only way to find out is to submit a PUC application with this scenario and see if it is accepted by the Commission.
- 12. The general recommendation of the PUC and FRA was to look at the 4-quadrant gate option at every crossing through downtown as this option would truly isolate the tracks while allowing thru movements along Mason and right-in-right-out movements to continue during train presence.
- 13. The group discussed the process of coordinating with the PUC and FRA. The PUC has authority in Colorado over all railroad crossings for safety. The FRA has nationwide jurisdiction with regard to treatments for Quiet Zone establishment. There was question, given the unique nature of the Mason Street corridor downtown, as to whether a proposed treatment for Quiet Zone establishment would be in compliance with the Manual on Uniform Traffic Control Devices (MUTCD), and therefore acceptable to the PUC. Alternatively, proposed treatments could be applied for through the PUC process and potentially approved, but not viable for Quiet Zone establishment with the FRA. There is no clear resolution to this process issue. However, both agencies agreed that 4-quadrant gates immediately adjacent to the tracks at each crossing would satisfy both the PUC for safety and FRA for Quiet Zone establishment.
- 14. There was conversation among the group regarding the lack of precedent anywhere in the country for a Quiet Zone being established in similar circumstances as the Mason Corridor. With this is mind, the group was continually encouraged to think outside the box to help determine what options could be available for establishing a Quiet Zone along the Mason corridor.

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### **Crossing Review:**

The following summarizes the group's discussion regarding railroad warning device options at the crossings:

### Linden Street -

- a. Development north of Vine is residential
- b. Pam (PUC) indicated that the new 4<sup>th</sup> leg of the intersection to the north necessitates some rotation of the existing railroad flashers to face north (they formerly faced northeasterly/northwesterly along the approaches on Vine prior to completion of the north roadway)
- c. Wayside Horns and 4-Quadrant Gates are both still options for this crossing

### College Avenue -

- a. Raised medians with approach gates are present at this crossing
- b. The north median needs to be extended to 100 feet from the gate arm
- c. The commercial business access on the southeast corner (currently Easycare Quick Lube) needs to be relocated to 60 feet from the gate arm
- d. This crossing does have Constant Warning Time (CWT) circuitry
- e. The group discussed the detached pedestrian sidewalk west of College Avenue. The 2009 MUTCD requires separate treatment for detached pedestrian facilities 25 feet or more away from the roadway; Pam (PUC) indicated that the 2009 MUTCD has not been adopted by the Transportation Commission as of yet. Additionally, because the sidewalk configuration is existing and was completed prior to the 2009 MUTCD recommendations, the PUC would not likely require modifications.
- f. Wayside horns could be considered as an option if the commercial access on the southeast quadrant cannot be relocated to 60 feet from the gate arm

### Cherry Street -

- a. Has CWT circuitry
- b. The raised median with approach gate option will work if the alley on the southeast quadrant can be closed or relocated
- c. The property east of the alley is slated for redevelopment. It may be possible as part of that redevelopment to redefine the closest access at 60 feet from the gate arm, which is approximately at the location of the parking lot access east of the alley

### Maple Street -

- a. None of the original options completely isolates the railroad tracks
- b. The group identified the 4-quadrant gate option as the favored option to isolate the tracks
- c. Northbound and southbound left turns from Mason Street will be prohibited in the 2-way operation
- d. Left turn movements from Maple onto Mason may conflict with gate base locations; this will need to be reviewed
- e. Maple at Mason is does not have a traffic signal

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- f. Due to the curve of the mainline track to the east just north of Maple, an additional approach gate is recommended for the northbound lane of Mason just north of Maple to stop traffic prior to the mainline track crossing this lane
- g. The median curbline along the west side of the mainline track should be extended north past the multi-family residential building access on the northwest quadrant of Mason and Maple. Additionally, the access should be right-in-right-out only to prohibit left turns out of the access that could conflict with train movements

## Laporte Avenue -

- a. This crossing needs CWT circuitry
- b. This intersection has a wider pavement section on all four legs of the intersection making it difficult to close completely with 4-quadrant gates
- c. Left turn movements are allowed in all directions at this intersection; gate bases may be within the wheel track of left turn movements and will need to be reviewed
- d. This intersection has a traffic signal which will remain and be reconfigured for the 2-way operation
- e. Consideration can be given to eliminating or dropping lanes at the intersection or narrowing lanes through the intersection to create a crossing that can be completely closed by 4-quadrant gates
- f. Placement of small curb islands within the intersection to potentially house additional gates would cause the elimination of left turn movements in nearly all directions; this is not desirable by the City

## **Mountain Avenue -**

- a. The 4-quadrant gate option will close off this crossing completely
- b. Left turn movements are allowed in all directions at this intersection; gate bases may be within the wheel track of left turn movements and will need to be reviewed
- c. There will be a dedicated left turn lane and a thru-right lane in the northbound and southbound directions on Mason in the 2-way operation.
- d. This intersection has a traffic signal which will remain and be reconfigured for the 2-way operation
- e. The 4-quadrant gate option would require space within the dedicated left turn lanes for placement of the gate bases. This will push the dedicated left turn lanes out, as well as the thru-right lanes out.
- f. The City may consider two options to this scenario:
  - a. Prohibiting left turns from Mason Street in both directions to narrow the laneage to one lane northbound and one lane southbound
  - b. Obtaining the additional area to the outside of the street to provide for both lanes at the intersection (the additional area may be obtained through elimination of parking, or acquisition of additional right-of-way)

### Oak Street -

- a. Northbound and southbound left turns from Mason Street will be prohibited in the 2-way operation
- b. This intersection has a traffic signal which will remain and be reconfigured for the 2-way operation

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- c. The original preferred concept of closure at this crossing is no longer acceptable to the DDA or the City because they do not wish to lose the pedestrian crossings at this location (Oak Street east of Mason is a pedestrian-friendly area and closed off from College Avenue)
- d. 4-quadrant gates would close this crossing completely
- e. Left turn movements from Oak onto Mason may conflict with gate base locations; this will need to be reviewed
- f. An additional option to be considered includes creating a one-way east street on Oak to the east of Mason and creating a one-way movement eastbound Oak to northbound Mason (westbound Oak to southbound Mason would not be allowed). This option will be generated as a possible concept at this crossing with the Quiet Zone treatment of one-way street with gates

### Olive Street -

- a. The 4-quadrant gate option will close off this crossing completely
- b. Left turn movements are allowed in all directions at this intersection; gate bases may be within the wheel track of left turn movements and will need to be reviewed
- c. There will be a dedicated left turn lane and a thru-right lane in the northbound and southbound directions on Mason in the 2-way operation.
- d. This intersection has a traffic signal which will remain and be reconfigured for the 2-way operation
- e. The 4-quadrant gate option would require space within the dedicated left turn lanes for placement of the gate bases. This will push the dedicated left turn lanes out, as well as the thru-right lanes out.
- f. The City may consider two options to this scenario:
  - a. Prohibiting left turns from Mason Street in both directions to narrow the laneage to one lane northbound and one lane southbound
  - b. Obtaining the additional area to the outside of the street to provide for both lanes at the intersection (the additional area may be obtained through elimination of parking, or acquisition of additional right-of-way)

# Magnolia Street -

- a. Northbound and southbound left turns from Mason Street will be prohibited in the 2-way operation
- b. This intersection does not have a traffic signal. It will remain a passive crossing in the 2-way operation
- c. Magnolia is stop controlled; Mason is the free flow movement
- d. Cross traffic on Magnolia is relatively constant as this is one of the few east-west connector streets across the Mason corridor
- e. 4-quadrant gates would close this crossing completely
- f. Left turn movements from Magnolia onto Mason may conflict with gate base locations; this will need to be reviewed

### **Mulberry Street -**

a. The 4-quadrant gate option will close off this crossing completely

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- b. Left turn movements are allowed in all directions at this intersection; gate bases may be within the wheel track of left turn movements and will need to be reviewed
- c. There will be a dedicated left turn lane and a thru-right lane in the northbound and southbound directions on Mason in the 2-way operation.
- d. This intersection has a traffic signal which will remain and be reconfigured for the 2-way operation
- e. The 4-quadrant gate option would require space within the dedicated left turn lanes for placement of the gate bases. This will push the dedicated left turn lanes out, as well as the thru-right lanes out.
- f. The City may consider two options to this scenario:
  - a. Prohibiting left turns from Mason Street in both directions to narrow the laneage to one lane northbound and one lane southbound
  - b. Obtaining the additional area to the outside of the street to provide for both lanes at the intersection (the additional area may be obtained through elimination of parking, or acquisition of additional right-of-way)

**Myrtle Street** – Note: Myrtle Street was not reviewed in the field by the group; comments are provided for information only based on findings at other similar crossings

- a. Northbound and southbound left turns from Mason Street will be prohibited in the 2-way operation
- b. This intersection does not have a traffic signal. It will remain a passive crossing in the 2-way operation
- c. Myrtle is stop controlled; Mason is the free flow movement
- d. The original preferred concept of closure at this crossing is no longer acceptable to the DDA or the City because they do not wish to lose the pedestrian crossings at this location
- e. 4-quadrant gates would close this crossing completely
- f. Left turn movements from Myrtle onto Mason may conflict with gate base locations; this will need to be reviewed

**Laurel Street** - Note: Laurel Street was not reviewed in the field by the group; comments are provided for information only based on findings at other similar crossings

- a. The 4-quadrant gate option will close off this crossing completely
- b. Left turn movements are allowed in all directions at this intersection; gate bases may be within the wheel track of left turn movements and will need to be reviewed
- c. This intersection has a traffic signal which will remain and be reconfigured for the 2-way operation
- d. The 4-quadrant gate option would require space within the northbound and southbound thru lanes on Mason for placement of the gate bases. This will push the thru lanes out, and may require additional right-of-way

Downtown Development Authority/City of Fort Collins/BNSF Quiet Zone Diagnostic: BNSF @ Linden, College and Cherry thru Laurel Office and Field Review

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E-Mail	
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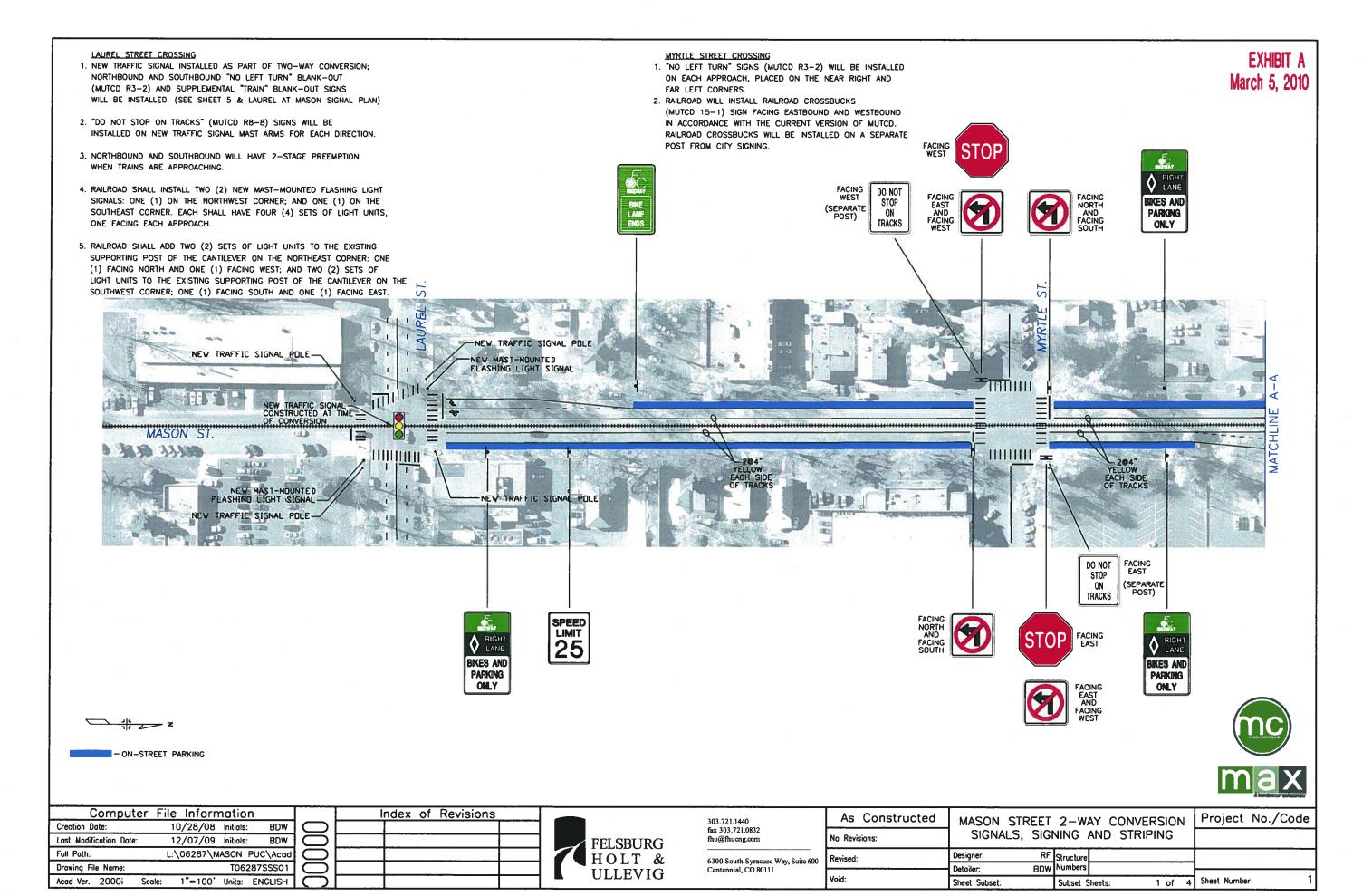
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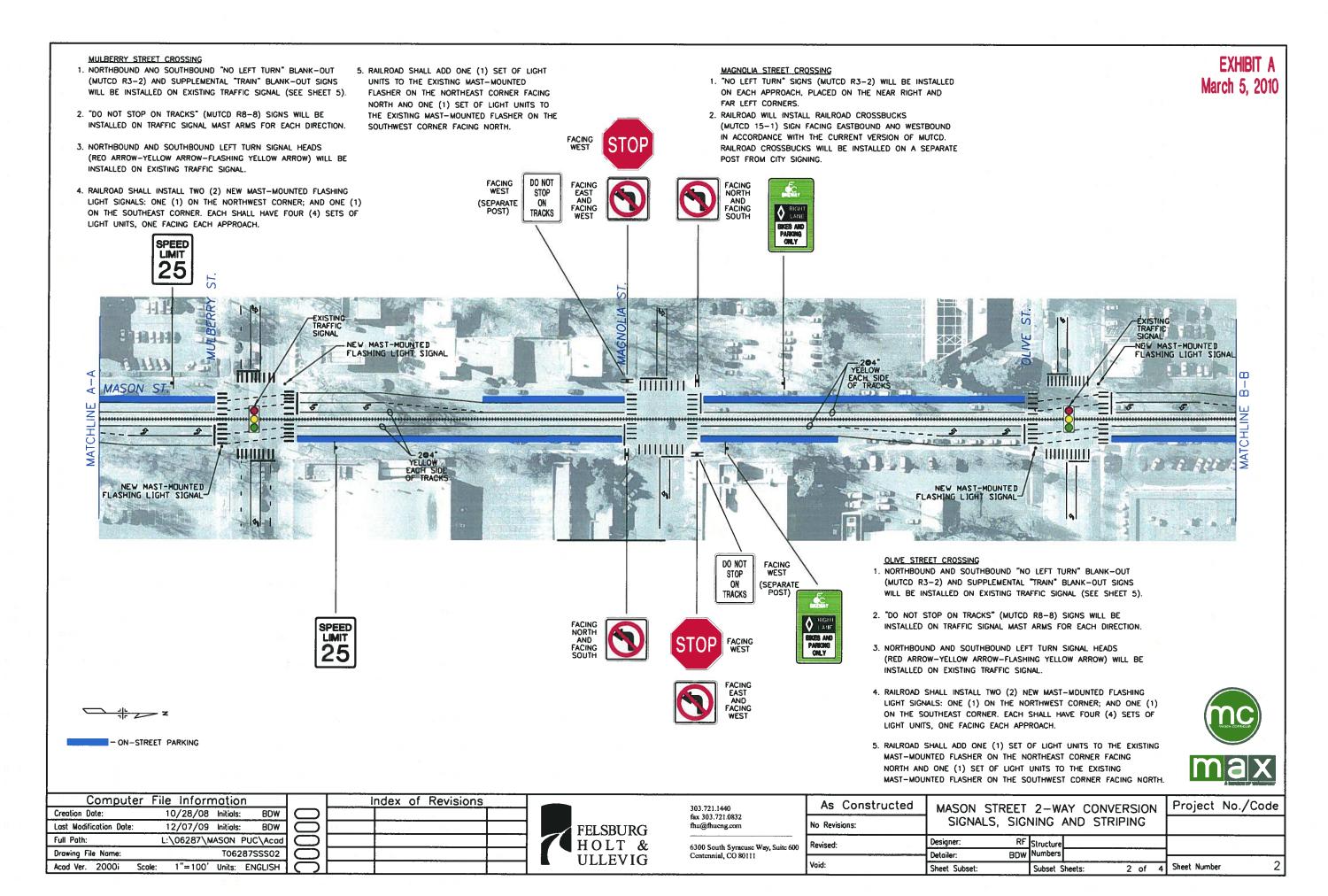
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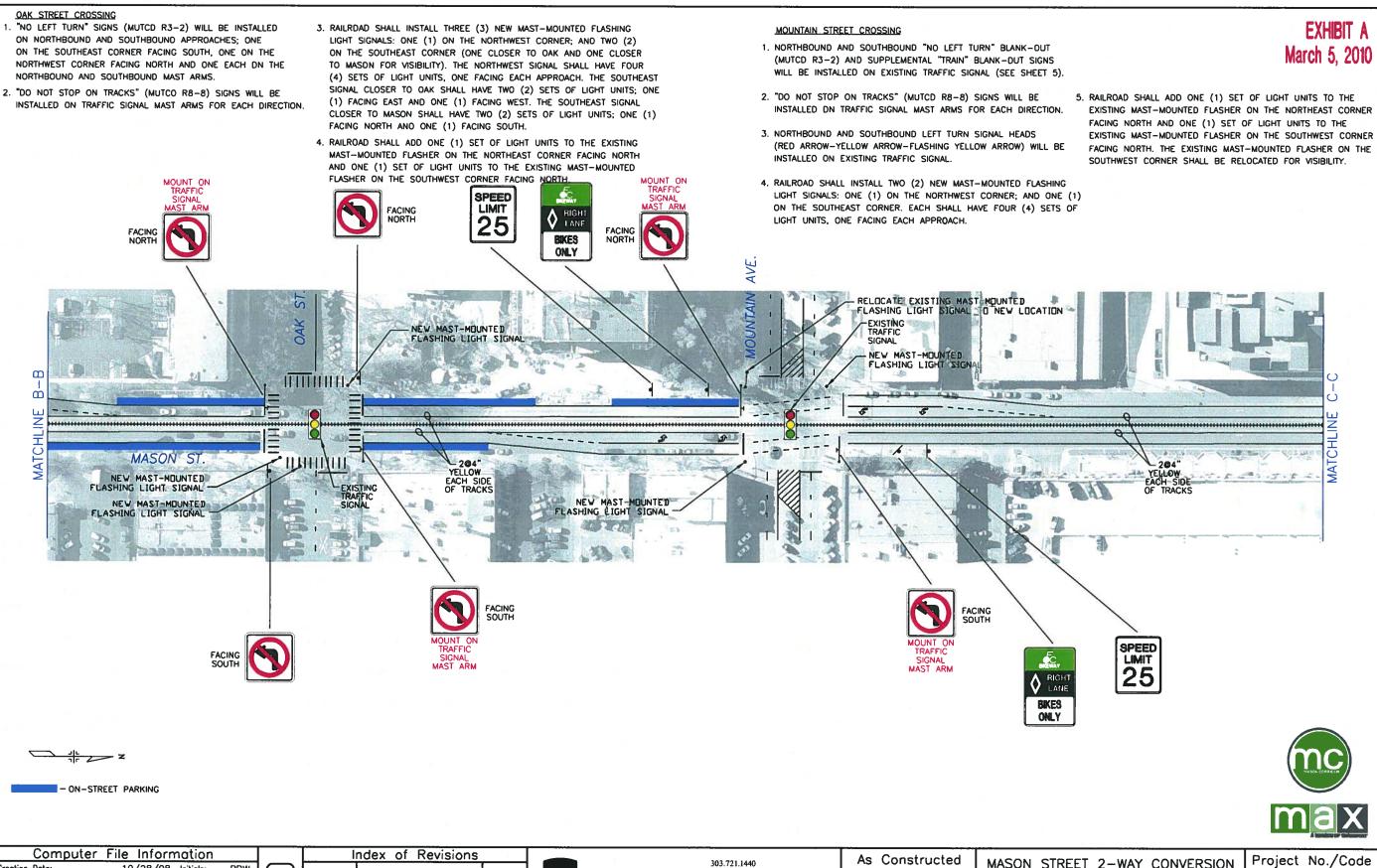
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# APPENDIX F MASON 2-WAY CONVERSION EXHIBITS

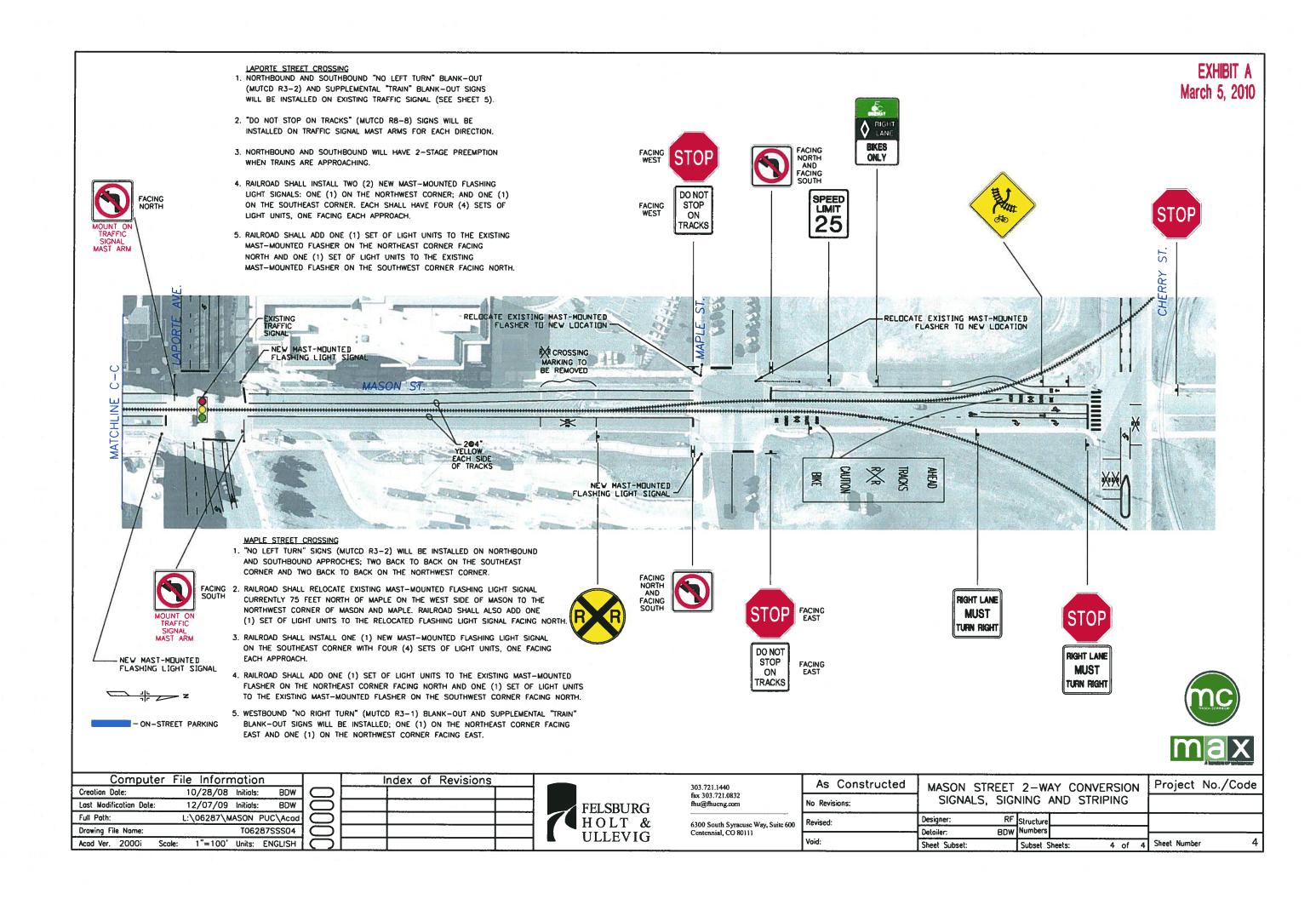


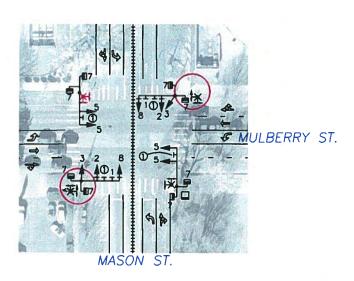


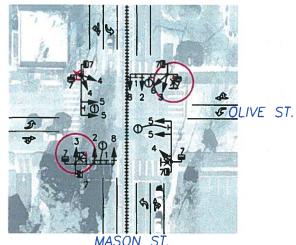


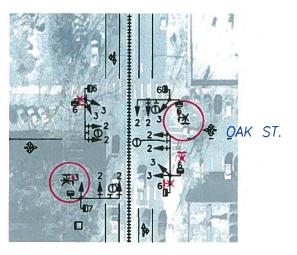


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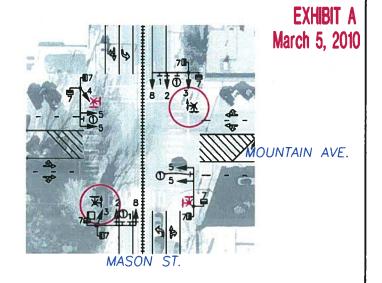


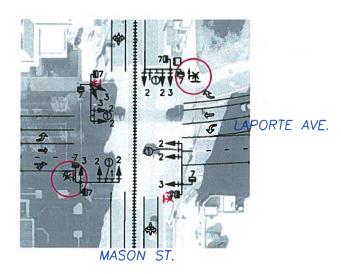












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1. ADD TWO (2) FLASHING LIGHT UNITS: DNE TO EACH EXISTING MAST-MOUNTED FLASHING LIGHT SIGNAL ON THE NORTHEAST AND SOUTHWEST CORNERS, FACING NORTH, AT THE FOLLOWING SIX (6) INTERSECTIONS:

- 1. MULBERRY ST. 3. DAK ST. 5. LAPORTE AVE.
  - 2. OLIVE ST. 4. MOUNTAIN AVE. 6. MAPLE ST.

2. ADD FOUR (4) FLASHING LIGHT UNITS AT LAUREL: TWO (2) TO THE EXISTING SUPPORTING POST OF THE CANTILEVER ON THE NORTHEAST CORNER: ONE (1) FACING NORTH AND ONE (1) FACING WEST; AND TWO (2) TO THE EXISTING SUPPORTING POST OF THE CANTILEVER ON THE SOUTHWEST CORNER: ONE (1) FACING SOUTH AND ONE (1) FACING EAST. (FLASHING)



THIS EQUIPMENT IS CURRENTLY LOCATED 75 FEET NORTH OF MAPLE ON THE WEST SIDE OF MASON. THE RAILROAD SHALL RELOCATE THIS EQUIPMENT TO THE NORTHWEST CORNER OF MASON STREET AT MAPLE STREET. THIS UNIT WILL REQUIRE AN ADDITIONAL FLASHING LIGHT UNIT FACING NORTH (PER THE NOTE TO THE LEFT.)

# **LEGEND**

SYMBOL	ITEM DESCRIPTION
•——	TRAFFIC SIGNAL POLE WITH MAST ARM
+-	TRAFFIC SIGNAL FACE WITH BACKPLATE
-	TRAFFIC SIGNAL FACE
_ <del>_</del> _ <del>_</del>	PEDESTRIAN SIGNAL FACE
0	TRAFFIC SIGNAL CONTROLLER AND CABINET
坔	RAILROAD X-BUCK AND SIGNALS
4	ELECTRONIC SIGN
•	PROPOSED ADDITIONAL RR FLASHER UNIT (2 HEADS)
푚	NEW MAST-MOUNTED FLASHING LIGHT SIGNAL (2 HEADS EACH DIRECTION)



1 of

STREET 2-WAY CONVERSION



Computer	File Information		Index of Revisions			303 731 1440	As Constructed	MASON	STREET	2 14//	Y CONVER
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