CITY OF RIVERSIDE
Office of the
City Attorney

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LONG BEACH, CA

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April 22, 2009

City Clerk Department
City of Long Beach
333 W. Ocean Boulevard, Lobby Level
Long Beach, CA 90802

Subject: Notice of Appeal of Environmental Determination for Middle Harbor Redevelopment Project; Our File No: 08-0567.2

Dear City Clerk:

In accordance with Long Beach Municipal Code section 21.21.507, the City of Riverside hereby formally appeals a harbor department environmental determination to the City Council. The subject of this appeal is the April 13, 2009, certification of an environmental impact report for the Port of Long Beach Middle Harbor Redevelopment Project.

On April 13, the City of Riverside appeared before the Board of Harbor Commissioners and objected to the certification of the Final Environmental Impact Report (Final EIR) for the Project. This appeal is made within the time allotted by section 21.21.507.

This appeal relies upon the Draft EIR, comments Riverside and others submitted on the Draft EIR, the Harbor Commission's responses to those comments, the Final EIR, Riverside's written reply to responses submitted before the April 13 hearing, Riverside's spoken comments made at the April 13 hearing, and others' written and spoken comments submitted on or before April 13, all incorporated herein by this reference. Please find enclosed copies of Riverside's comments and reply.

Riverside's reply, together with the enclosed copy of the Harbor Commission's "Public Comment Speakers" handout, also serves as the "evidence that each ground for the appeal was submitted to the board by the appellant or another person before the environmental determination" required by section 21.21.507(E)(3). The written speaker card submitted at the meeting, the reporter's transcript, and the audio and video record of the hearing are further evidence, but remain in the Harbor Commission's possession.

The grounds for this appeal are that the Board of Harbor Commissioners did not proceed in the manner required by law, abused its discretion, and violated the California Environmental Quality Act (CEQA) by failing to comply with CEQA's requirements. More specifically, the Board certified an EIR insufficient in scope and not based on substantial evidence:

- The Project will increase train trips 15-fold, to more than 2,000 annual trips, a majority of which travel through the City of Riverside, yet the Draft EIR did not analyze the impacts of those trips.

- Riverside submitted detailed comments explaining that it is trisected by railroads, that the railroad capacity is impacted, and that the additional rail traffic would have direct, indirect, and cumulative impacts to its residents. Riverside supported its comments with extensive and detailed materials, including local, state, and federal information, and data showing the delays to emergency service response cause by railroads.

- The harbor department denied or ignored Riverside's impacts, did not analyze those impacts, and instead relied upon a different agency's analysis. Unfortunately, that analysis is fatally flawed. In response to Riverside's comments on the rail impacts from the Port of Los Angeles's China Shipping Terminal Expansion Project, the Port of Los Angeles performed a short-term rail count and used the Highway Capacity Method (HCM) to find the less-than-significant delays it sought. The short-term rail counts were inaccurate and under-estimated the number of rail trips through Riverside by up to two thirds. Furthermore, the HCM is not used for rail impact analysis - it is for signalized intersection analysis only. The proper analytical tool is the Federal Railway Administration (FRA) method, which the Port of Los Angeles did not use. The FRA method shows a much greater impact than the incorrect HCM method. The Port of Los Angeles response also grossly over-estimated the costs of grade separations, which fully mitigate for rail impacts.

- Riverside submitted detailed factual data showing that it is negatively impacted by rail traffic and that the additional train trips from the Project would significantly impact Riverside even further.

- Riverside also made clear that mitigation is not infeasible, and not in the range of hundreds of millions as feared by Los Angeles. Instead, fair-share contributions to a regional solution, together with the actual costs of grade separations ($24 to $30 million), show that mitigation is feasible. Yet, the Harbor Commission refused to analyze mitigation.

- The rail trip estimates are not supported by data or calculations. One example is the Draft EIR's estimate (repeated in the responses to comments) of trains, based on lengths of 25 cars. The Draft EIR did not explain that when the Port used the term "rail car" it meant "five articulated bare tables and averages 300 feet in length." A second example is the proportion of traffic to be transported by rail. The Port is actively seeking to increase the proportion of cargo transported by rail, and has already approved two such measures. Do the EIR rail trip calculations account for those?

- The EIR contain critical factual errors. The harbor department has stated that "rail-hauled cargo makes up about half of the containers that pass through the Port." Working backwards from the Final EIR conclusions results in a different value of 31% by train. Yet the Draft EIR presumed that 24% of the cargo throughput by rail. Those conflict by up to 100%. Another error is that the EIR assumes that 25% of the eastbound trains will use the Union Pacific line through San Bernardino, instead of traveling through Riverside. UP operates two (2) east/west lines, with the eastbound trains travelling through Riverside. The Port's rail impact conclusions cannot be correct if they are based on errors as fundamental as where the trains travel. Riverside's comments made clear that the UP trains travel through Riverside.

- The EIR also blames Riverside for being in the Port's way. As set forth in the State CEQA Guidelines, the baseline for CEQA analysis is the conditions as they exist at the time of analysis, not before a city or region experiences growth.

- The EIR claims that adequate rail capacity remains, but also admits to limited trackage and increasing demand. This is an irreconcilable conflict.

- The Harbor Commission did not provide the ten (10) days after written responses to comments and certification of the EIR required by CEQA.

According to the CEQA, an EIR and findings must be based on substantial evidence. However, evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence. The errors recited above demonstrate that the Project Final EIR and the findings are not based on substantial evidence. The above is not an exclusive list of the grounds for appeal; Riverside's comments and reply, enclosed, provide further detail for the grounds.

Notwithstanding this appeal, which must be made to preserve our legal rights, the City of Riverside remains committed to a cooperative resolution. The City of Riverside is willing to meet with Long Beach City Council staff or representatives to work towards a solution to the rail impact issues, in lieu of proceeding to litigation. We sincerely hope that the Long Beach City Council will accept Riverside's offer to cooperate. Regrettably, the Harbor Commission flatly refused.

Please do not hesitate to contact me if I can be of any further assistance in resolving this matter, or regarding this appeal. I may be reached at 3900 Main Street, Fifth Floor, Riverside, California, 92522 or by telephone at (951) 826-5567.

Very truly yours,

Gregory P. Priamos
City Attorney

GPP/ALB/jw

Attachments

c: Clerk of the Board of Harbor Commissioners
Robert S. Bower, Esq.
M. Katherine Jenson, Esq.

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CITY OF RIVERSIDE
Office of the
City Attorney

August 12, 2008

Richard Cameron
Director of Environmental Planning
Port of Long Beach
925 S. Harbor Plaza
Long Beach, CA 90802

Subject: CEQA Research; Our File No: 08-0567

Dear Mr. Cameron:

The City of Riverside appreciates this opportunity to review the Draft EIR/EIS (the "DEIR") for the Middle Harbor Redevelopment Project (the "Project"). At this point in the process, Riverside submits the following comments:

- The data and calculations underlying rail trips were not included in the DEIR Appendix J, the rail analysis, provides nothing more than 8 small, cryptic tables. There are no explanations, assumptions, or other data to support those numbers. There is no way to verify the timeliness, accuracy, applicability, or even the existence of the data. Those data must be included and analyzed in the DEIR discussions and analysis, or at the very least, in the appendix. Otherwise, those cursory and unexplained numbers are not substantial evidence and cannot support an environmental analysis or decision.

- The DEIR rail discussion is internally flawed. For example, page 16 of the Traffic Study states that the baseline number of rail trips is 138 per year, but there will be 2,098 per year at capacity, "a 94 percent increase." That is actually a 1,520 percent increase. There is no information in the DEIR to explain or verify those figures. The rail trip impact discussion is factually and analytically inadequate, and must be revised.

- The DEIR refers to "on-dock" and other rail facilities, but they are never defined. Without knowing what an on-dock facility is, compared to the other types mentioned in the DEIR, one cannot effectively evaluate the rail discussions and analyses.

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- The DEIR does not specify whether the rail trips are one-way or round-trip. If the trips are round-trip, as with the Port of Los Angeles China Shipping Terminal Project RDEIR, then the rail impacts are actually double the reported values.

- The China Shipping Terminal Project at the adjacent Port of Los Angeles will also generate rail traffic. That cumulative analysis was not performed, but must be.

- In section 3.6, the DEIR admits that increased rail traffic will cause adverse traffic impacts, particularly at "at-grade crossings." Yet, the RDEIR claims those impacts are not feasible to mitigate. That is incorrect. "Grade separations" are common, accepted, and effective mitigation of at-grade rail impacts by vertically separating the rail and vehicular traffic. There is no explanation given to support the conclusion that grade separations are infeasible.

- The project-derived rail freight will eventually travel north and east. There are limited rail lines leading east; in fact, there are only two – the Union Pacific and the Burlington Northern Santa Fe. As a result, the increase in rail traffic flowing east can easily be estimated, and so can the impacts from those increases. The Port need not control the rails to know where the freight is going, and how much freight is moving. The baseline and with-Project number of trains can be estimated also. Given that there will be impacts from the increase in rail traffic, the Port must analyze those impacts and mitigate them.

- Riverside is particularly impacted by rail traffic. As explained in the attached documents (which are all incorporated in these comments by reference as if set forth in full), Riverside has 26 at-grade main-line rail crossings within the City limits. Riverside is currently burdened with up to 128 trains per day carrying approximately 75% of the containers from the Ports of Los Angeles and Long Beach. According to the DEIR, the project will add 1,960 trains per year. Even presuming that only half of those trips flow east, the Project will increase train traffic in Riverside by 3 more trains per day. That is a significant impact, which becomes even more significant in an already-impacted City. There are also 37 passenger trains competing for rail access through Riverside, further complicating the delays.

- The DEIR is incorrect that there is remaining rail capacity, therefore no impacts. Repeated rail-scheduling conflicts result in serious delays in Riverside, and elsewhere. Adding trains will only exacerbate those conflicts.

- For example, idling vehicles stopped at at-grade crossings contribute 45 tons of air pollutants annually. By 2020, idling vehicles stopped at at-grade crossings will generate 208 tons of air pollutants annually; a staggering 450 percent increase in just 12 years. The Riverside County Department of Health indicates that City of Riverside children, 5 to 14 years of age, suffer more asthma-related hospitalizations than any other group.

- Riverside residents are forced to wait an average of three and up to six hours a day per crossing for trains to pass.

- Police, fire and EMT officials reported 491 delays at Riverside's at-grade crossings between 2002 and 2007. Responder delays averaged 3 minutes and were as long as 21 minutes.

- During the one-year period from 8/5/2007 to 8/5/2008, Riverside experienced 161 rail-delayed fire trucks and ambulances, for a total of 418 minutes, and an average of 2.6 minutes per delay. Each of those minutes can represent life or death. Heart attack survival rates can drop from 7% to 10% for each minute of delay. Brain damage can occur in 3 to 4 minutes. During that same year, rail delays affected 527 police vehicles, for a total of 1,644 minutes, 3.1 minutes per delay. Again, those minutes can mean life or death.

- The stopped trains and stopped traffic cause local air quality impacts and waste fuel. Disturbed traffic flow can create more dangerous driving conditions. More rail traffic also causes more rail/traffic and rail/pedestrian impacts, and additional noise.

- Fortunately, grade separations can mitigate the additional rail impacts. Riverside has an active program for grade separations. The Port can readily mitigate the additional rail burden through Riverside by fair-share contributions to grade separations. This does not require the railroads to mitigate. The Port need not control the rails or railroads at all to mitigate this way.

In closing, Riverside again thanks the Port for the opportunity to comment on the DEIR, and looks forward to working together with the Port to improve and protect the environment. If you have any questions, please do not hesitate to contact me at your convenience.

Very truly yours,

Anthony L. Beaumon
Deputy City Attorney

Attachments

c: Michael J. Beck, Assistant City Manager
Siobhan Foster, Public Works Director

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RESOLUTION NO. 21456

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF RIVERSIDE, CALIFORNIA, ORDERING, CALLING, PROVIDING FOR AND GIVING NOTICE OF A SPECIAL MUNICIPAL ELECTION TO BE HELD IN SAID CITY ON THE 6TH DAY OF NOVEMBER 2007, FOR THE PURPOSE OF SUBMITTING TO THE QUALIFIED ELECTORS OF THE CITY OF RIVERSIDE, CERTAIN AMENDMENTS TO THE CHARTER OF THE CITY OF RIVERSIDE, AND GIVING NOTICE AND ORDERING THAT SAID SPECIAL MUNICIPAL ELECTION IS CONSOLIDATED WITH ALL OTHER ELECTIONS BEING HELD IN THE SAME TERRITORY ON THE SAME DATE.

WHEREAS, the City of Riverside has 27 public highway-rail grade crossings which must be mitigated in order to preserve public safety for the citizens of the City of Riverside; and

WHEREAS, two main freight lines, the Union Pacific (UP) and the Burlington Northern Santa Fe (BNSF), bisect the City of Riverside; and

WHEREAS, approximately 35 freight trains and 12 passenger trains pass through the City on the UP line each day as of June 2007; and

WHEREAS, approximately 52 freight trains and 25 passenger trains pass through the City on the BNSF line each day as of June 2007; and

WHEREAS, the most recent grade crossing separation needs list prepared by the Riverside County Transportation Commission contains the 61 most impacted public highway-rail grade crossings in Riverside County and 27 of those 61 crossings are within the City of Riverside, thereby making the City of Riverside the most impacted City in Riverside County as well as the entire State of California; and

WHEREAS, blockages of these grade crossings creates significant traffic hazards that endanger City residents, and routinely prevent emergency response vehicles from arriving at their destinations in a timely manner; and

WHEREAS, from January 1 through December 31, 2005, trains on the UP line delayed ambulance and fire emergency vehicle responses 78 times. These emergency vehicles were delayed over 227 minutes for an average delay of nearly 3 minutes; and

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3900 MAIN STREET
RIVERSIDE, CA 92522
(951) 826-5567

WHEREAS, from January 1 through December 31, 2005, trains on the BNSF line delayed ambulance and fire emergency vehicle responses 61 times. These emergency vehicles were delayed over 146.5 minutes for an average delay of nearly 2.89 minutes; and

WHEREAS, from January 1 through December 31, 2006, trains on the UP line delayed ambulance and fire emergency vehicle responses 47 times. These emergency vehicles were delayed by 145 minutes for an average delay of 3.5 minutes, up over one-half minute from 2005; and

WHEREAS, from January 1 through December 31, 2006, trains on the BNSF line delayed ambulance and fire emergency vehicle responses 60 times. These emergency vehicles were delayed by 178 minutes for an average delay of 2.96 minutes, an increase over 2005; and

WHEREAS, from January 1 through May 21, 2007, trains on the UP line delayed ambulance and fire emergency vehicles responses 25 times. These emergency vehicles were delayed by 79 minutes for an average of 3.16 minutes; and

WHEREAS, from January 1 through May 21, 2007, trains on the BNSF line delayed ambulance and fire emergency vehicle responses 57 times. These emergency vehicles were delayed by 177 minutes for an average of 3.1 minutes, an increase once again over the prior year; and

WHEREAS, over the past three years, there have been over 9 instances in which a train has stopped on the UP line blocking major thoroughfares in excess of 10 minutes, some in excess of one hour; and

WHEREAS, for example, on May 19, 2006, a UP train blocked four grade crossings within the City for a period of 2 hours, including both Magnolia and Riverside Avenues. When approached by Riverside Police Officers, railroad personnel stated that the train was waiting for a new train engineer to be transported to the site and take over operation on the train. On May 26, 2006, a UP train again blocked four grade crossings within the City, including the crossings at Magnolia and Riverside Avenues. This blockage lasted for 2 hours and 40 minutes, and because it occurred between the hours of 3:00 and 5:40 p.m., it had a major impact on traffic in the area. When Riverside Police Officers contacted the UP dispatch center to inquire as to the status of the train, UP was unable to provide a reason for why the train had stopped. On June 2, 2006, a UP train blocked three grade crossings within the City, including the crossing at Magnolia Avenue. The crossings were blocked in total for 1 hour 45 minutes. Initially, the crossings were blocked for approximately 50 minutes between the hours of 9:40 and 10:30 a.m. when a train stopped on the tracks at the grade intersection. Approximately 10 minutes after the train cleared the grade crossings, a second train stopped and blocked the grade crossings for a period of 25 minutes. Immediately after the second train cleared the grade crossings, a third train stopped and blocked the crossings for approximately 20 more minutes. When Riverside Police Officers contacted the UP regarding the blocked grade crossings, the UP dispatch center stated that it had no record of any stopped trains at the stated location. Most recently, on May 15, 2007, a UP train blocked several grade crossings within the City including the crossing at Magnolia Avenue for more than 20 minutes. When City officials contacted UP regarding the blocked grade crossings, the UP dispatch center stated it had no record of any trains stopped at the stated location; and

WHEREAS, from December 1, 2006 through April 23, 2007, there were 205 incidents where a responding Riverside Police unit was delayed by a train by the BNSF line, and 99 incidents where the responding police unit was delayed by a train on the UP line; and

WHEREAS, such delays can be a matter of life or death. According to the guidelines of the American Heart Association, most adults with sudden (witnessed) non-traumatic cardiac arrest are found to be in ventricular fibrillation (VF). For these victims, the time from collapse to defibrillation is the single greatest determinant of survival. The window of opportunity is small. Survival from cardiac arrest caused by VF declines approximately seven to ten percent for each minute without defibrillation. Most causes of cardiopulmonary arrest in infants or children are related to airway or ventilation rather than sudden cardiac arrest. In these victims, rescue support (especially rescue breathing) is essential. Cardiac arrest (clinical death) can develop within 3 – 4 minutes if responders are unable to rapidly initiate ventilatory support. When breathing and/or circulation stops, the brain starts to die in 4 – 6 minutes without oxygen. Brain death is usually irreversible after ten minutes; and

WHEREAS, the most important elements in limiting fire spread are the quick arrival of fire personnel and equipment to attack and extinguish the fire. Any delay in fire attack allows the fire to grow in intensity and results in additional fire damage. Delays cause firefighters to fight larger, more intense fires. Fire growth occurs exponentially, in that a fire doubles itself every minute of free burning. The National Fire Protection Association indicates that "two minutes can make the difference between no fire and one that is uncontrollable"; and

WHEREAS, the most crucial time for a traffic accident victim is the first minutes following the accident when life-saving actions can be administered; and

WHEREAS, based upon the factual information set forth above, blocked grade crossings severely limit the ability of emergency response vehicles to access their destinations thereby significantly impairing the ability of police, ambulance and fire personnel to provide timely and critical public safety services; and

WHEREAS, no other city in the State of California is as severely impacted with respect to the impacts on the provision of critical public safety services due to train or other vehicle blockages on public highway-rail grade crossings as the City of Riverside; and

WHEREAS, the City of Riverside has a critical and substantial interest in the free flow of rail and other vehicular traffic through the City so as to limit these negative impacts; and

WHEREAS, the City of Riverside is a Charter City which derives its corporate powers directly from the Constitution subject to the limitations of its Charter; and

WHEREAS, Article XI, Section 5(a) of the California Constitution authorizes a charter city to exercise plenary authority over "municipal affairs"; and

WHEREAS, the effective provision of police, ambulance and fire safety services, as well as the effective improvement and operation of municipal streets, is a "municipal affair"; and

WHEREAS, Article XI, Section 7 of the California Constitution authorizes the City of Riverside to make and enforce within its limits, all local, police, sanitary and other ordinances and regulations not in conflict with general laws; and

WHEREAS, in exercise of its police power, the City of Riverside has broad discretion in determining what is reasonable in endeavoring to protect the public health, safety, and general

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3900 MAIN STREET
RIVERSIDE, CA 92522

welfare of the community; and

WHEREAS, the facts set forth herein establish that the City of Riverside is unlike any other city in the State of California, that the City of Riverside is severely and negatively impaired in its ability to provide critical public safety services to its residents and that this action is critical to protecting the public health and safety of its residents; and

WHEREAS, Article XI, Section 3, of the Constitution of the State of California, Elections Code section 9255 and Government Code section 34458 further authorize the City Council, on its own motion, to submit to the qualified electors of the City any ballot measure by ordinance or resolution proposing amendments to the City Charter at any time; and

WHEREAS, certain special districts will conduct an election on November 6, 2007.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Riverside, as follows:

Section 1: The City Council, pursuant to its right and authority under California law, hereby orders that the following question be submitted to the qualified electors of the City of Riverside at a special election on November 6, 2007:

Shall the Charter of the City of Riverside be amended to add Section 1406 such that:

No person or entity shall cause or permit any railway train or railway cars or similar vehicle on rails or other vehicle to stop or stand or to be operated in such a manner as to block any public highway-rail grade crossings and delay the response of an authorized emergency vehicle except under bona fide emergency circumstances which require the operator to stop or be subject to an administrative fine or penalty in the amount of One Hundred Thousand Dollars ($100,000.00) and further be subject to an administrative fine or penalty of Ten Thousand Dollars ($10,000.00) for each subsequent minute for which they cause or permit the violation to remain.

Section 2: It is the intent of the City Council, in proposing this Charter Amendment, to use its plenary authority over "municipal affairs" pursuant to Article XI, Section 5(a) of the California Constitution, as well as its police power, as provided in Article XI, Section 7 of the California Constitution, to protect the health, safety and general welfare of the community by providing for the effective and timely provision of police, ambulance and fire safety services, as well as the effective operation of municipal streets. It is not the intent of the City Council to regulate interstate commerce, railroad operations or to impair the regulatory powers of applicable state or federal agencies, and the proposed ballot language shall not be construed as so doing.

Section 3: That only the qualified electors of the City of Riverside are entitled to vote at said election on this proposal to amend the City Charter and that if a majority of the qualified electors voting on the Charter proposal votes in favor of the proposal, said proposal shall be deemed approved.

Section 4: The City Clerk is authorized, instructed and directed to take all action necessary to place the measure described herein on the special municipal election ballot for the special municipal election on November 6, 2007.

Section 5: The City Clerk is directed to transmit a copy of the measure to the City Attorney. The City Attorney shall prepare an impartial analysis of the measure pursuant to Elections Code section 9280, showing the effect of the measure on the existing law and the operation of the measure. The analysis shall be printed preceding the arguments for and against the measure.

Section 6: That in accordance with the provisions of the Charter of the City of Riverside and the Constitution and Election Laws of the State of California, a special municipal election to be held and the same is hereby called and ordered to be held in the City of Riverside on November 6, 2007, for the purpose of submitting to the qualified electors of the City of Riverside such amendments to the City Charter as may be proposed by the City Council.

Section 7: That the polls for said election shall be open at 7:00 a.m. of the day of said election and shall remain open continuously from said time until 8:00 p.m. of the same day, when the polls shall be closed, except as provided in Section 14401 of the Elections Code of the State of California.

Section 8: That the City Council consents to the consolidation of the special municipal election hereby called with all other elections being held in the same territory on November 6, 2007, and said elections, where possible, shall be held in all respects as if there were only one election within the City of Riverside and only one form of ballot shall be used in the precincts, and polling places and officers of election for said elections shall be the same as provided for the statewide general election.

Section 9: That for the purpose of holding said special municipal election, there shall be and hereby are established consolidated voting precincts, consisting of a consolidation of the regular election precincts in the City of Riverside established for the holding of state and county elections as said regular election precincts exist on the date of this resolution.

Section 10: That the form and contents of the ballot to be used at said election shall be as provided by law.

Section 11: That in accordance with Section 10002 of the Elections Code, the Board of Supervisors of Riverside County is hereby requested to consent to the Registrar of Voters rendering election services to the City of Riverside as may be requested by the City Clerk of said city, the County of Riverside to be reimbursed in full, for such services as are performed.

Section 12: That the elections services of the City of Riverside request the Registrar of Voters, or such other official as may be appropriate, to perform, and that such officer is hereby authorized and directed to perform if the said Board of Supervisors consents, include: the preparation, printing and mailing of sample ballots and polling place cards; the establishment or appointment of precincts, polling places, and election officers, and making such publications as are requested by law in connection therewith; the furnishing of ballots, voting booths and other necessary supplies or materials for polling places; the canvassing of the returns of election and the furnishing of the results of such canvassing to the City Clerk of the City of Riverside; and the performance of such other election services as may be requested by said City Clerk.

Section 13: That the City Clerk shall have charge of all City elections pursuant to Riverside City Charter Section 703(f).

Section 14: That the City Clerk is hereby designated the "Elections Official" for the purposes of this election pursuant to Elections Code section 320(b).

Section 15: That based upon the foregoing authority, the City Clerk shall have charge of this election and shall make all determinations necessary to conducting this election

Section 16: That the City Clerk of said City shall receive the canvass of the special municipal election and shall certify the results to the City Council, as required by law.

Section 17: That the ballot measure is exempt under the California Environmental Quality Act ("CEQA") including, but not limited to, State CEQA Guidelines Sections 15061(b)(3), 15269(c), 15301(c) and 15308. Specifically, the action proposed under the ballot measure does not have any possibility for causing a significant effect on the environment since the matter is merely the imposition of a fine. Further, the action is created so as to prevent a clear and imminent danger to life, health, property and essential public services, which are currently, and will continue to be, threatened. Finally, this action is merely the proposal to protect the environment by preventing idling of cars, trucks, and trains which affect the air quality and traffic, and by allowing emergency response vehicles to timely arrive at their destinations.

ADOPTED by the City Council and signed by the Mayor and attested by the City Clerk this 10th day of July, 2007.

Ronald Loveridge

Mayor of the City of Riverside

ATTEST:

City Clerk of the City of Riverside

I, Colleen J. Nicol, City Clerk of the City of Riverside, California, hereby certify that the foregoing resolution was duly and regularly adopted at a meeting of the City Council of said City at its meeting held on the 10th day of July, 2007, by the following vote, to wit:

Ayes: Councilmembers Betro, Gage, Schiavone, Adkison, Hart, and Adams

Noes: Councilmember Melendrez

Absent: None

Abstain: None

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the City of Riverside, California, this 10th day of July, 2007.

City Clerk of the City of Riverside

[07-1889.1]

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CITY OF
RIVERSIDE

Public Safety Impacts of Train Blockages

Governmental Affairs Committee

June 25, 2007

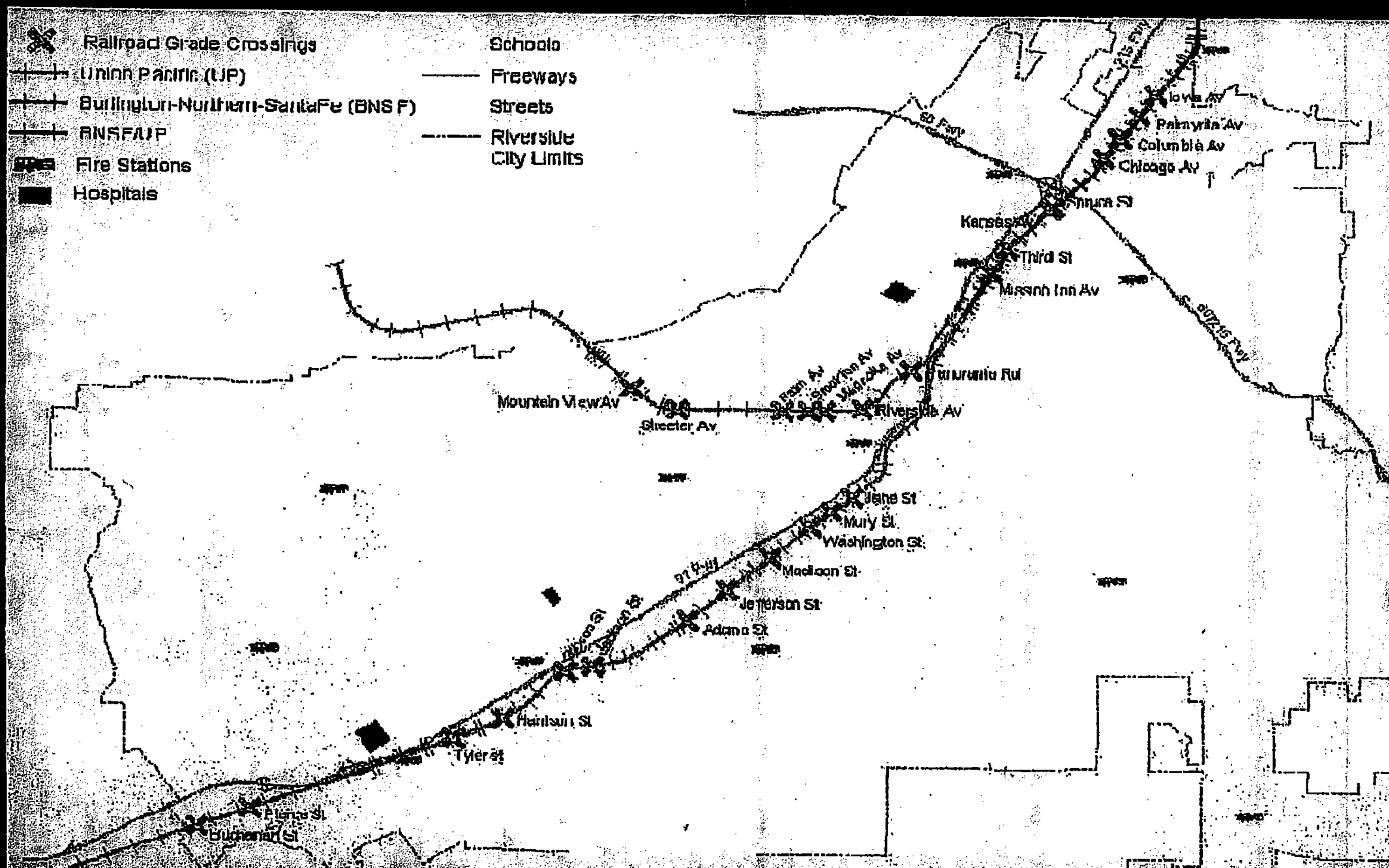
CITY OF RIVERSIDE

Public Safety Impacts of Train Blockages

- 27 at-grade railroad crossings in the City of Riverside requiring mitigation
- Two main freight lines bisect the City of Riverside
  - Union Pacific (UP)
  - Burlington Northern Santa Fe (BNSF)

Primary Rail Routes

CITY OF RIVERSIDE



CITY OF RIVERSIDE

Typical Daily Train Traffic

- Freight traffic includes:
  - 35 freight trains on the UP line
  - 52 freight trains on the BNSF line
- Passenger traffic includes:
  - 12 passenger trains on the UP line
  - 25 passenger trains on the BNSF line

CITY OF RIVERSIDE

Emergency Vehicle Related Delays

- To date, 2007 delays include:
  - 82 delayed responding AMR and fire vehicles
  - A total of 256 minutes of delay
- Dec 1, 2006 to April 24, 2007
  - 270 Police vehicle delays
  - A total of 1,327 minutes (22.12 hours) of delay

CITY OF
RIVERSIDE

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

September 26, 2006

The Honorable Daniel K. Inouye
Co-Chairman
Committee on Commerce,
Science, and Transportation
United States Senate
Washington, DC 20510

Dear Senator ~~Inouye:~~ SENATOR,

I am pleased to submit a report by the Federal Railroad Administration (FRA) on the *Impact of Blocked Highway/Rail Grade Crossings on Emergency Response Services*, in response to Section 9004 of Public Law 109-59. The report examines the causes, solutions, and examples of projects that reduce the impact of blocked crossings.

The study was conducted in consultation with State and local government officials, including transportation planners and emergency responders. These groups and others provided significant input into the report, particularly with respect to real-world approaches to resolving blocked crossing problems.

Identical letters have been sent to the Chairman of the Senate Committee on Commerce, Science, and Transportation, and the Chairman and Ranking Member of the House Committee on Transportation and Infrastructure.

Sincerely yours,

Maria Cino
Acting Secretary

Enclosure

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

September 26, 2006

The Honorable Don Young
Chairman
Committee on Transportation and
Infrastructure
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Young: CHAIRMAN,

I am pleased to submit a report by the Federal Railroad Administration (FRA) on the *Impact of Blocked Highway/Rail Grade Crossings on Emergency Response Services*, in response to Section 9004 of Public Law 109-59. The report examines the causes, solutions and examples of projects that reduce the impact of blocked crossings.

The study was conducted in consultation with State and local government officials, including transportation planners and emergency responders. These groups and others provided significant input into the report, particularly with respect to real-world approaches to resolving blocked crossing problems.

An identical letter has been sent to the Ranking Member of the House Committee on Transportation and Infrastructure, and Chairman and Co-Chairman of the Senate Committee on Commerce, Science, and Transportation.

Sincerely yours,

Maria Cino

Maria Cino
Acting Secretary

Enclosure

THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

September 26, 2006

The Honorable James L. Oberstar
Ranking Member
Committee on Transportation and
Infrastructure
U.S. House of Representatives
Washington, DC 20515

Dear Congressman Oberstar: CONGRESSMAN,

I am pleased to submit a report by the Federal Railroad Administration (FRA) on the *Impact of Blocked Highway/Rail Grade Crossings on Emergency Response Services*, in response to Section 9004 of Public Law 109-59. The report examines the causes, solutions and examples of projects that reduce the impact of blocked crossings.

The study was conducted in consultation with State and local government officials, including transportation planners and emergency responders. These groups and others provided significant input into the report, particularly with respect to real-world approaches to resolving blocked crossing problems.

Identical letters have been sent to the Chairman of the House Committee on Transportation and Infrastructure, and the Chairman and Co-Chairman of the Senate Committee on Commerce, Science and Transportation.

Sincerely yours,

Maria Cino
Maria Cino
Acting Secretary

Enclosure

Impact of Blocked Highway/Rail Grade Crossings On Emergency Response Services

Federal Railroad Administration

August 2006

Report on the Impact of Blocked Highway-Railroad Grade Crossings on Emergency Response Services

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I. Executive Summary

As directed by Congress in the Safe, Accountable, Flexible, Efficient Transportation Equity Act; a Legacy for Users of 2005 (SAFETEA-LU), the Federal Railroad Administration (FRA) has prepared a report regarding the impacts of blocked highway-railroad grade crossings on emergency response providers.[1] In this report, FRA has identified the principal causes of blocked grade crossings.

While every minute can be precious in an emergency, crossings blocked for extended periods of time are a much greater problem than simply having to wait while a train passes through a crossing. A variety of railroad operational issues, described in this report, can lead to trains stopping in a position that blocks a crossing. Given the growth in both rail and highway traffic, it is likely that the problem of blocked crossings will increase in the future.

Railroads and communities around the country, working together, have crafted a number of solutions to the problem. These remedies range from grade separations, which solve the problem completely, to cooperative agreements with the railroads to notify emergency response personnel when a crossing is or may be blocked. Grade separations are expensive and generally are undertaken to address traffic problems caused by blocked crossings, although the advantages for emergency response are a factor in justifying such investments. Monitoring railroad operations, either with radars and cameras at crossings or through contact with the railroad, is much cheaper. When dispatchers are aware that a crossing is or will be blocked by a train, they can route emergency responders to alternative routes. Additionally, railroads have altered their operations in ways that reduce blockages, although often these changes increase railroad costs.

Communities are the best judges of the severity of the problem of blocked crossings. Working with the railroads, they can identify the most cost-effective solution. The existence of relatively inexpensive remedies should allow most communities to take the necessary steps to mitigate the problem.

Railroads must play a key role. They should actively work with communities to identify problems and propose possible remedies. Although railroads have only limited staffs available to work on community issues, this report found numerous examples of active railroad and community cooperation that resulted in projects or procedures to reduce the impact of blocked crossings.

II. Introduction

Section 9004 of SAFETEA-LU, "Report Regarding Impact on Public Safety of Train Travel in Communities without Grade Separation," requires the Secretary of the U.S.

[1] For the purpose of this report, highway-railroad grade crossing refers to any vehicular crossing of railroad tracks, including state and federal highways, county roads and city streets as well as private grade crossings.

Department of Transportation (DOT) to conduct a study of the impacts of blocked highway-railroad grade crossings on emergency response providers - ambulance, fire, and police services. The Federal Railroad Administration (FRA) has conducted this study for the Secretary, gathering information from State and local government officials, emergency responders, and the railroads.

This report describes the sources of the blocked highway-railroad grade crossing problem and reports on possible solutions. The report presents a number of case studies of communities that have experienced blocked grade crossings and solutions that have either been implemented or are in the process of being developed.

In the preparation of this report, FRA has received assistance from a number of entities, including our DOT partners, the National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration (FHWA): a variety of state and local governments and several railroads. We thank them all for their assistance.

III. Methodology

There is no uniform national data collected on blocked crossings or on emergency responder delays. While some individual communities collect information on these subjects, there is no way to extrapolate these experiences into a national picture of delays. Therefore, the approach chosen was to contact those who had knowledge or experience in the area and build on that to create a report that explored the issue on the basis of those who actually dealt with it.

First, FRA sought to better understand the problem as seen by the emergency response community. Working with NHTSA, FRA sent a joint letter to state emergency response directors, soliciting input on their perception of the problem. This led to additional contacts in the emergency medical services (EMS) community, including mention of the study on various EMS-related websites. As a result, FRA received a large number of responses from police, fire, and rescue personnel throughout the country. Their experiences and concerns led to a better appreciation of what they faced and where those problems were most severe.

Additionally, the FRA's regional grade crossing managers, who deal daily with grade crossing safety concerns, were asked to provide any experiences and contacts they might have with regard to emergency response issues.[2] They provided valuable information on specific crossing concerns in a number of areas as well as identifying locations we might use for case studies.

State DOTs were contacted both to learn of problems and solutions as well as to get their views. They provided valuable contacts and information on the issue, including how state rail programs were working to eliminate or avoid such problems.

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[2] FRA has regional grade crossing managers in each of its 8 regions. See Appendix II for their names and contact information.

Finally, FRA contacted the Class I railroads to learn of their view of the issue, and, in particular, how they were addressing blocked crossings. They provided much valuable information on their operations and on solutions they had identified.

Using the contacts developed, FRA followed up to learn more about what was the cause of blocked crossings and what solutions might be appropriate. The results of these efforts are summarized in the case studies in Appendix I.

The FRA then identified solutions proposed or implemented in various communities. Each community is best situated to evaluate how severely it views the situation and what efforts it is prepared to make, in cooperation with the railroads, to mitigate the problem. This report gives an idea of the wide range of solutions to be considered.

IV. Scope of the Problem

There are over 241,000 highway-railroad grade crossings in the U.S., 146,000 public and the rest private.[3] Highway-railroad crossings are blocked when trains travel over or stop on track crossed by a highway. Trains may block crossings for only a limited time for a short passenger train traveling at a fairly high speed, or for hours after a grade crossing accident or a mechanical problem with a train. Blocked crossings are a problem for all highway users, but they can be a particularly serious problem for emergency responders. Emergency responders (emergency medical services, fire and police) need to reach their destinations as quickly as possible. An ambulance racing to a heart attack victim or an automobile accident may be delayed only a few minutes by a passing train, but even a few minutes is a very long time in an emergency. A fire engine forced to take another route because of a stopped train may arrive at a fire too late to prevent significant damage or even deaths or injuries. Delayed police response can lessen the chance to apprehend a criminal or prevent a more serious crime.

The problem is not simply trains moving through a grade crossing. Many areas reported problems with trains that stopped while blocking a crossing, sometimes for hours. There are a number of reasons for trains to block crossings and these factors also determine the length of time the crossing is blocked.

While there are no aggregate statistics on delays at crossings, blocked crossings have become a more contentious issue in recent years. This may be partly due to the expectation that emergency response will be quicker and therefore delays are less acceptable. But there are several national trends that may be leading to greater problems with blocked crossings.

[3] These numbers are approximate, based on reports by state DOTs to FRA and other sources. In some cases, a railroad line may be abandoned, but the crossing is still counted. In other cases, a highway crossing may be closed, but still counted. New crossings, both public and private, are added all the time, making it difficult to have an exact number.

A. Community Growth

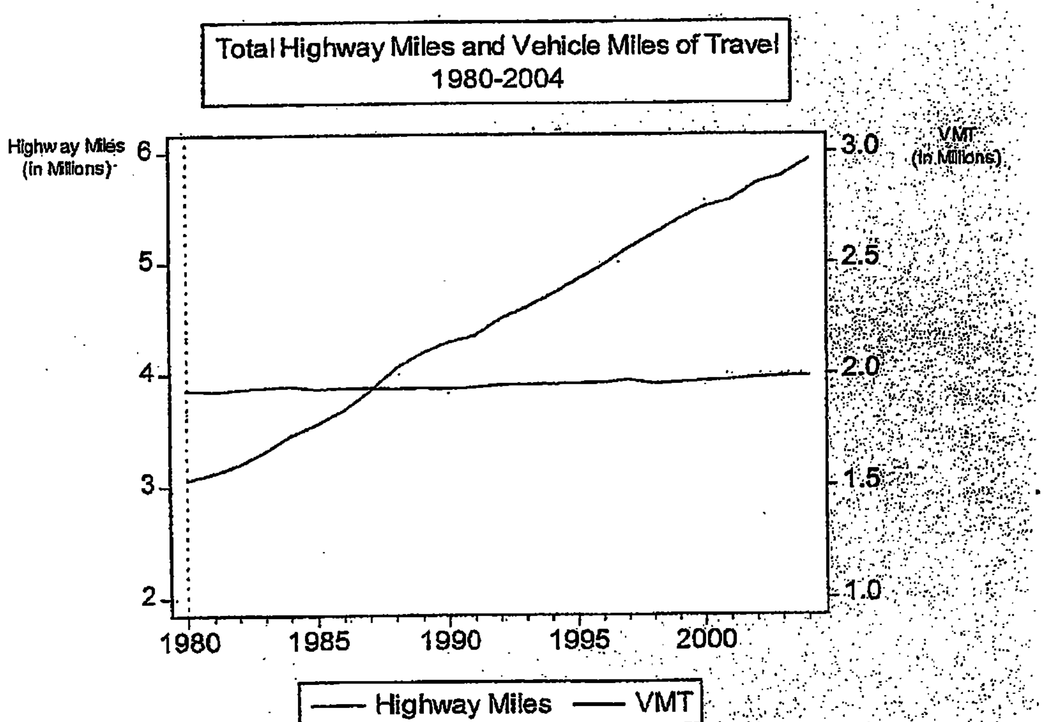
In many parts of the country, communities grew up around the railroad, which means the railroad often runs right through the middle of town. Grade separations in these towns are often resisted because of the density of development and the need to build ramps to any road bridge over the tracks. If these towns have emergency facilities only on one side of the railroad, the potential for blocked crossings will grow as the community grows, particularly if rail traffic is also growing.

As these towns spread out into suburbs, development leads to new roads and demands for additional grade crossings if there is no nearby grade-separated highway. This can result in new residential areas without direct grade separated access to emergency facilities.

B. Growth in Highway Traffic

Highway traffic has grown steadily. As Chart 1 indicates, the number of lane miles has grown much more slowly. This has led to increased traffic density on many of our roads and highways. With more highway traffic, blocked crossings inevitably lead to more delays for motorists. The ensuing congestion can further hamper emergency responders who are delayed by a train in a crossing. They must then make their way through the traffic resulting from blocked crossing.

Chart 1



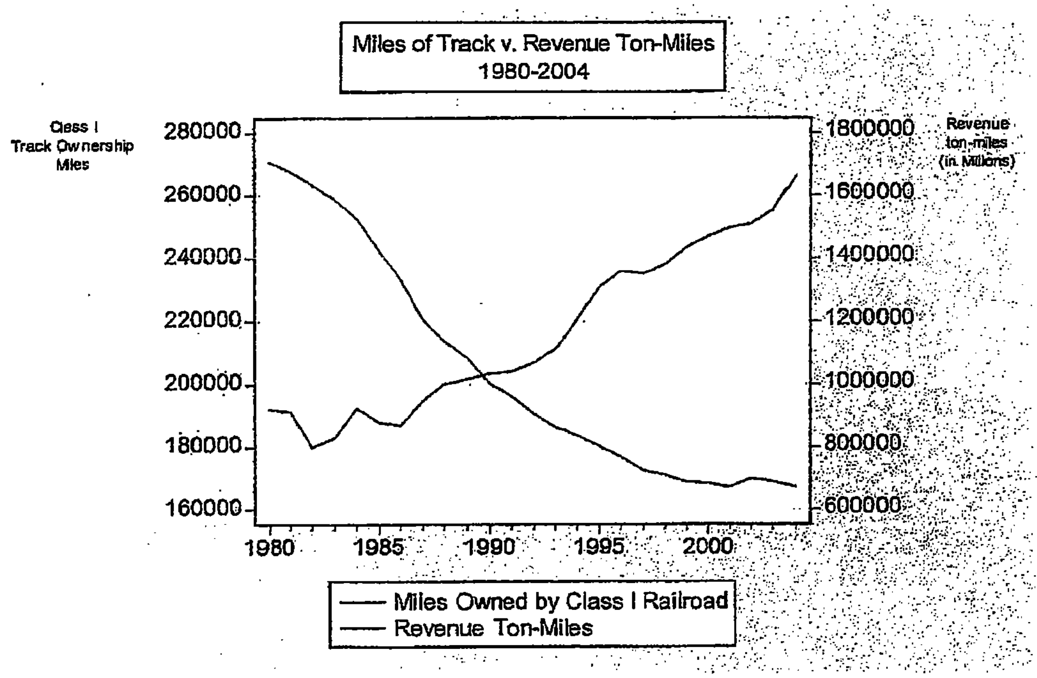
Source: Federal Highway Administration, Highway Statistics, 2004

C. Growth in Rail Traffic

Like highway traffic, rail traffic has continued to grow. In 1980, railroads in the United States originated 1.492 billion tons of freight traffic. By 2004, that figure grew to 1.844 billion tons.[4] The growth in rail traffic reflects changes in rail regulation and the growth of demand for rail transportation. After years of decline, the rail industry was partially deregulated by the Staggers Act in 1980. The railroad industry then entered a period of consolidation and restructuring that led to a decrease in track miles, increased railroad merger activity, and significant productivity improvements

Between 1980 and 2004, despite traffic growth, railroad track miles decreased considerably (see Chart 2). The result is that density – cars or trains per day for each mile of highway or track - has steadily grown. Grade separations have alleviated conflicts in some areas, but more trains and more vehicles at most crossings inevitably lead to highway delays – delays that can also delay emergency response times.

Chart 2



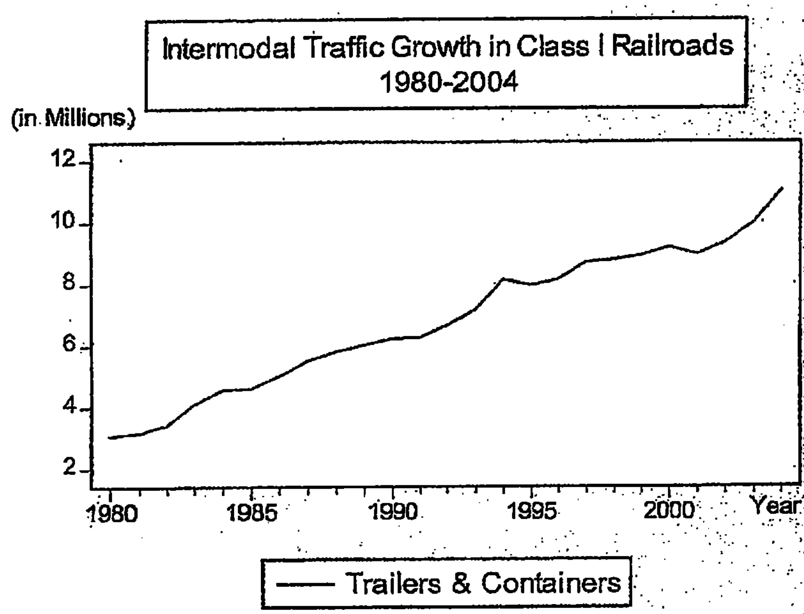
Source: Association of American Railroads, Railroad Facts, 2005 Edition, page 27, 45

The demand for rail services has meant more trains on those remaining miles. The increase in the number of trains on a line inevitably means more delays for highway users and emergency responders. Rail traffic growth has come primarily from two sources: intermodal freight and coal. The growth in intermodal freight traffic, particularly in

[4] Association of American Railroads, Railroad Facts, 2005 Edition, page 28.

trains to and from the Ports of Los Angeles and Long Beach, has been phenomenal (see Chart 3). Coal traffic, the historic mainstay of the rail industry, has also been increasing rapidly. The relatively low price of coal for generating electricity, compared to natural gas and oil, has led many utilities to increase the use of coal where possible. Responding to legislation to reduce emissions, many utilities have switched to low-sulfur coal from the Powder River Basin in northeastern Wyoming and nearby areas. This coal is now being hauled to utilities in the south and east. These long hauls have increased traffic on a number of Midwestern rail lines.

Chart 3



Source: Association of American Railroads, Railroad Facts, 2005 Edition, page 26

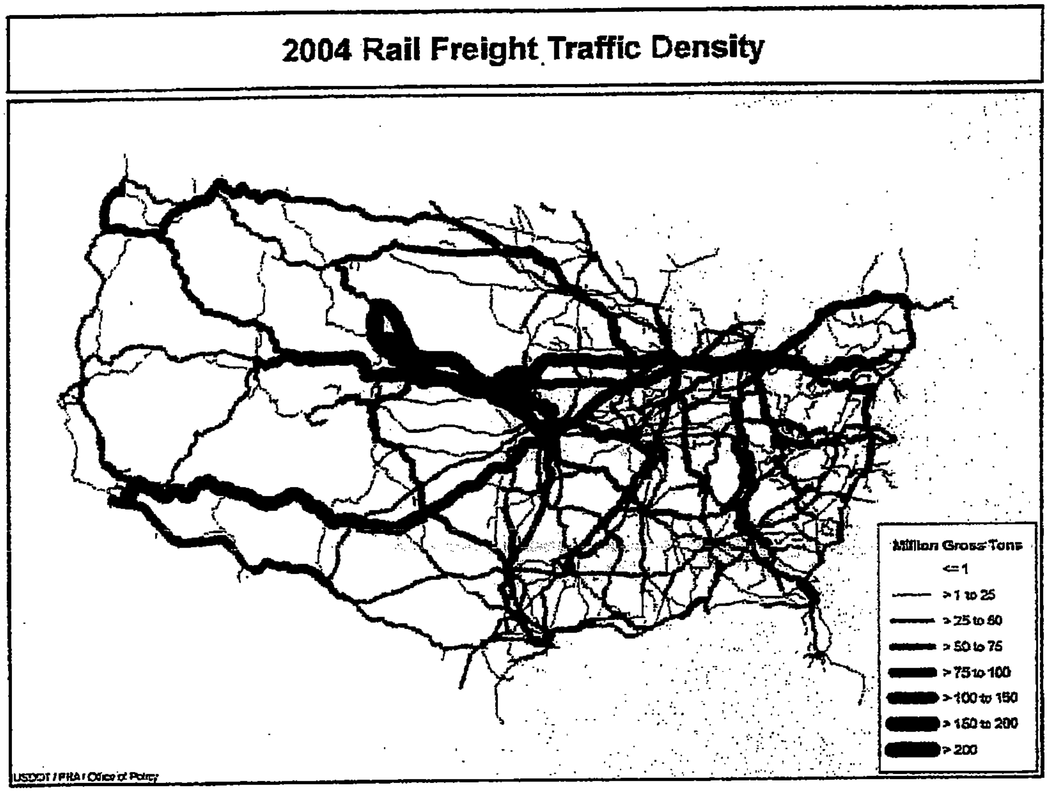
V. Causes of Blocked Crossings

A. Moving Trains

Many freight trains today are over one mile long. At twenty miles an hour, such a train would take 3 minutes to clear a crossing. If the crossing has gates, those gates would go down before the train arrived and would not rise until the train had passed, perhaps adding another minute or two. With growing rail traffic handled over fewer rail lines, blockages due to passing trains are becoming more frequent in certain areas. There are a number of rail corridors with over 100 trains a day, and some with over 150. If, as a rough estimate, a given crossing has four trains an hour, it is inevitable that at some point the gates lowered for a passing train will remain down as another train approaches from the opposite direction, so crossings of busy lines might see delays of 10 or more minutes per occurrence, depending on train speed.

Rail freight traffic density is shown in Map 1. Forecasts by the U.S. DOT and DRI-WEFA (see AASHTO Bottom Line Report, Table 6, Page 56) indicate that freight traffic overall is likely to increase 57% between 2000 and 2020 while rail traffic is forecast to grow by 44% in the same period, leading to even greater density.

Map 1



As of July, 2006, oil had reached a price of $78 a barrel, an increase of about 300% from the $25 a barrel it sold for in 2000. If oil prices remain at current (or higher) levels, coal traffic from the Powder River Basin and other areas will grow rapidly. Additionally, continued economic growth will likely generate rapid growth in intermodal traffic from the ports.

Increases in train traffic coupled with increases in highway traffic will lead to more congestion related to highway-railroad grade crossings. It may also lead to problems in providing emergency services unless steps are taken to mitigate these problems.

B. Stopped Trains

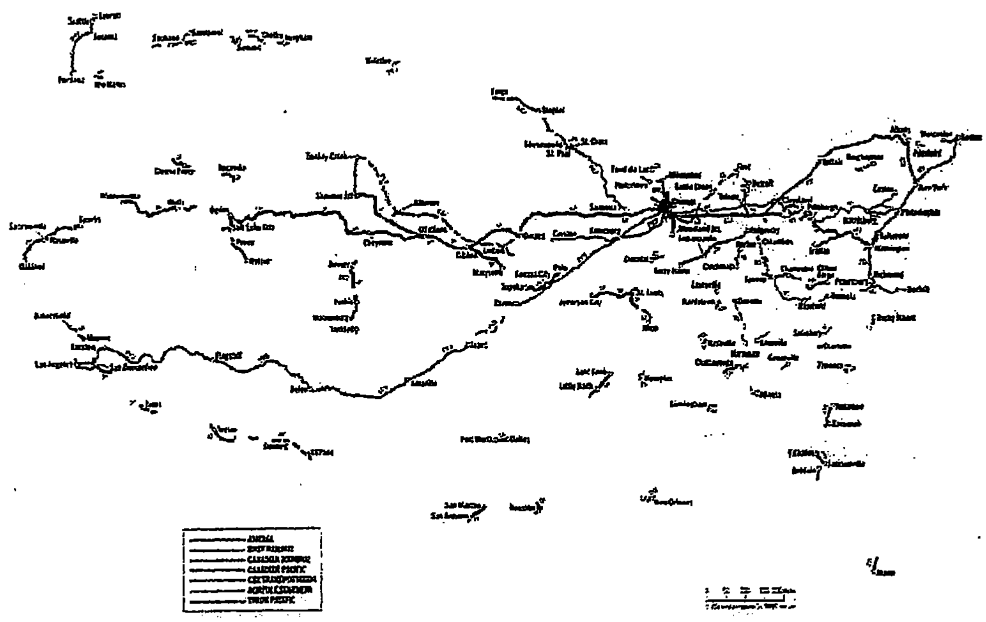
The problem of blocked crossings due to passing trains, and sometimes multiple trains, is a serious problem in some limited areas. In many communities, however, the problem is due to stopped, rather than moving trains. Stopped trains might block a crossing for 15 minutes to several hours. The impact of a stopped train on emergency response can, of course, be very serious in cases of true emergency, particularly if no grade separated alternative is available nearby. The number of instances of blocked crossings due to stopped trains is probably increasing due to growth in rail traffic. There are a number of reasons, discussed below, that the growth in rail traffic and related congestion on the railroads may be causing more crossings to be blocked for extended periods.

1. Trains Held in Sidings

Railroad main lines are generally either double or single track. On single-track rail lines, passing sidings are used to allow two trains proceeding in opposite directions to pass (known as a "meet") or to allow a faster train to overtake a slower train. On a single-track rail line, one train must always pull into a siding and then wait to allow an oncoming train to proceed or to allow a faster train to pass. Trains operating over a double-track rail line generally do not have to stop to allow oncoming trains to pass. Depending on the capability of the signaling system and the availability of crossover tracks between the two rail lines, on a double track rail line, faster trains can even overtake slower trains going in the same direction, if there is no oncoming train in the area.

As the Map 2 shows, most railroad mainlines in the U.S. are single track. As traffic grows, a single-track railroad can quickly become congested, resulting in trains stopped in sidings for sometimes hours.

Map 2



Source: Trains Magazine

Colored lines indicate double (or more) tracked rail lines

Consider a fairly common situation: a single track main line and passing sidings every few miles. In such cases, one train must pull into the passing siding and await an oncoming train. Depending on the spacing of sidings, the speed of the trains, and whether or not they are on schedule, the train pulling into the siding (typically a lower priority train) may have to wait for a considerable time before it is free to continue its journey. Trains, and consequently sidings, have been getting longer. Sidings are now almost always a mile or more in length. In many parts of the country, it is difficult to locate a siding more than a mile long in a place where it will not cross a road. Trying to locate a series of such sidings along a rail corridor without blocking a crossing is nearly impossible. At least one railroad interviewed for this study has stated that it has had difficulty locating sidings where they are needed in terms of railroad operations due to community opposition to extending a siding across a highway. Any vehicle using a grade crossing that crosses a rail line at a siding is probably going to face serious delays occasionally.

For example, on CSX's busy corridor between Chicago and Florida, sidings are being lengthened to 10,000 feet. The distance between sidings is being reduced from 30 to 15 miles. Entrance and exits speeds are being doubled to 30 mph. Improved signaling will allow meets and passes to take place more efficiently.[5] These improvements, in addition to benefiting CSX's productivity, should have a positive impact on blocked crossings in the corridor, by reducing the time a train is stopped in a siding blocking a crossing.

To illustrate how long trains must sometimes remain in sidings in the course of normal operations, consider the situation just described, before improvements: sidings spaced 30 miles apart. A train arrives at the siding where a meet is to take place and pulls in. If the oncoming train is late, but has just passed the last siding between the trains, the stopped train would have to wait while the oncoming train covered the 30 miles between the sidings. That could easily mean the stopped train would stay on the siding for an hour or more, depending on the speed of the oncoming train. If that siding had a crossing, it would mean substantial delays for routine highway users but potentially critical delays for emergency response vehicles.

It also takes a considerable time for a stopped train to clear the siding and resume its journey after the oncoming train has passed. Among the factors that can determine the delays are powered or manual turnouts (switches) and the type of turnouts (higher or lower speed limits apply to different types of turnouts);[6] the railroad signaling system; the grade, if any, that the train must ascend; and visibility. If a grade crossing has been located beyond the end of the crossing to avoid parked trains blocking the crossing, there could still be a blockage of 15 to 20 minutes while the train pulls out of the siding. If the turnouts are manual, the train crewmember must throw the switch to allow the parked train to pull out of the siding onto the mainline, wait while the train pulls through the turnout (manual switches typically have a 15 mph or less speed limit), then throw the switch to the through position. The train, after it clears the turnout must stop and wait while the crewmember walks the length of the train (maybe a mile or more) to climb into the locomotive. At this point, the train can resume its journey.

The problem is even worse in cases where a lower priority train pulls into a siding to allow an overtaking train going in the same direction to pass. In this case, depending on the signaling system, the train must wait until the overtaking train has proceeded through the next signal block so that the passed train has a clear signal to proceed.[7]

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[5] Railway Age, September 2005, page 16

[6] These speed limits are determined by the angle that the turnout deviates from the tangent rail line. The sharper the angle, or the more quickly a train would be put in a new direction, the slower the speed limit

[7] Signaled railroad lines are divided into blocks. Each block has a signal at the beginning of the block that tells the engineer to stop, proceed slowly such as to be able to stop at the next signal, or to proceed normally. Two trains are generally not permitted to occupy the same block, since there would be no signal to warn an overtaking train that there is another train in the block. Two trains may occupy the same block under certain conditions if there is no risk of collision. For example, a train may be allowed to proceed at a very low speed until it approaches a stopped train in the same block when congestion delays several trains at the same time. Block spacing depends on railroad policies, but in general a block cannot be smaller than the distance that would be required for a train to stop.

Visibility can also be an issue, requiring the train to enter a siding at a slow enough speed to stop if there is a problem. This is a factor if the signaling system is not able to indicate whether the siding (as opposed to the mainline) is clear.

2. Yard and Switching Activities

Railroads yards are used to sort cars from arriving trains into departing trains bound for the car's ultimate destination. Yards function in a manner somewhat similar to airline terminal "hubs." Yards also form "local" trains that pickup and deliver cars to area customers. These switching activities – pulling a block of cars from one track, then pushing the cars onto another track -- can lead to blocked crossings. Increases in rail traffic and the growing length of individual trains have strained the capacity of rail yards to assemble and disassemble trains. Few rail yards have highway crossings, but since many yards are a mile or more long, they often have highway crossings just beyond the "throat" of the yard. (The throat is the beginning of the yard, where turnouts begin to provide access to the many sorting and storage tracks.) As trains are assembled from blocks of cars on individual tracks, the switching locomotives must pull strings of cars out of the yard to clear a turnout, then push the string onto a different track to connect with the next block of cars scheduled to be part of the train. Highway crossings just beyond the throats of rail yards can be blocked by the assembling of trains and the associated pulling into and out of the yard.

Arriving trains are usually routed into a "receiving yard." The road locomotives are uncoupled and switching locomotives disassemble the blocks of cars in the train and put them on tracks where they will await their next move, either directly to a customer in a local train or assembly into new trains. If more trains arrive in a given period than there is room in the receiving yard, the arriving trains may wait in sidings along the mainline before the yard or on the mainline itself. These waiting trains may block crossings if they must wait on segments of track with crossings. Often, delays resulting from yard congestion have caused trains to block these crossings for far more time than would result from a passing train.

Railroad switching – where a train stops, backs up and drops off or picks up cars and pulls forward again – can produce longer blockages than a passing train would cause. Usually, these moves are involved in serving customers directly, picking up or delivering cars. Such switching can also result if the track configuration requires partial disassembling of a train to accommodate limited track structure. (See Case Study C. i., Greenville, NC.)

3. Operational Problems

Highway-railroad grade crossings may be blocked by trains forced to stop for operational reasons. These include trains stopping for mechanical reasons, trains stopped because the crew has reached the hours of service limits and trains involved in grade crossing accidents with highway vehicles[8]. In many of these cases, it may be several hours before the train can resume its journey.

Congestion on a railroad line often means delays for individual trains, as they wait in sidings for other trains to pass or are stopped on the mainline until room is found for them in a receiving yard. These delays can cause the train crew to reach its service limit under the hours of service rules. Railroad procedures generally call for the dispatcher to direct such crews to a siding where they can halt the train and await a relief crew. Dispatchers often attempt to place trains where they will not unduly impede highway traffic, but the key consideration is that they not block the railroad's mainline and that they are placed in a location where a relief crew, coming by van, can easily reach them by road. Local officials interviewed in this study noted at least some cases where crews have stopped trains blocking important crossings when they reached their hours of service limit, resulting in extended crossing blockages.

Trains, like highway vehicles, can experience mechanical problems that require the train to halt. For example, there are "hot box" detectors along many lines that sense when a rail car's wheel bearings have become too hot. Rather than continue on and experience a potentially catastrophic accident, it becomes necessary to stop the train and "set out" the car with an overheated bearing. This requires the train to stop at a point where there is a siding or other track, and leave the car there. Because of the need to find a satisfactory point to drop off the car, the train may stop and switch at a point where it blocks a crossing for a considerably longer time than would be the case if the train were just passing through.

Finally, train accidents, including grade crossing accidents, can lead to unplanned delays that can be extensive, if the train involved in the accident blocks crossings.

Railroads are aware that an emergency train stop can block crossings. Some railroads have a standing policy of notifying local police and emergency responders when a train blocks crossings in certain communities. Others have a policy of "breaking" a train when it would otherwise block a crossing for an extended period. "Breaking" a train refers to uncoupling a train and pulling the front part of the train forward until an interval is opened at the grade crossing between the front and back parts of the train.

C. Summary

It was impossible to quantify the various delays and types of problems nationally. Therefore, FRA identified communities that have reported problems and examined their experiences. Based on these discussions and discussions with the railroads, FRA found that crossings are blocked for a number of reasons. Trains passing through a grade crossing do cause delays and interfere with emergency response. Trains that stop while blocking a crossing are a more significant problem. FRA identified a number of causes

[8] Federal Hours of Service rules govern the time train crews can remain on duty. If a train is delayed and the crew reaches its hours of service limits, the crew is required to halt the train.

for trains to stop in crossings, sometimes causing lengthy delays. Stopped trains appear to cause more concern to the emergency response community than passing trains. While crossings blocked by passing trains cause stressful delays, they are neither as dangerous nor as frustrating as being totally unable to reach the scene of an emergency due to a stopped train.

VI. Impacts on Emergency Response

Delays in emergency situations can have tragic consequences. Emergency responders can be delayed by many things: availability of units, highway traffic, dispatching delays or errors and weather. Delays due to highway-railroad crossings are no different in effect than delays due to other causes. In evaluating the impact of delays, we must consider the cost in terms of deterioration in expected outcome for ambulance patients, worsening of fire damage from delayed fire truck response, and reduced likelihood for apprehension of suspects from delayed police response. Additionally, delays prove very stressful to emergency responders and victims, which also is a cost to be considered. Unfortunately, it is very difficult to convert a delay in response into a quantifiable impact.

The FRA has reviewed anecdotal reports of problems resulting from delays in emergency response due to blocked highway-railroad crossings. However, it is not possible to estimate the costs or impacts of such delays nationally or locally without much more detailed information from communities than is available. The impacts on communities from delayed response due to blocked crossings, while sometimes severe, are less than the impacts of traffic delays and congestion caused by blocked crossings. Another way to look at it would be to say that in places where blocked crossings are seen as a problem – to traffic, to safety and to emergency response – emergency response delays may help to justify a grade separation or other major expenditure, but such delays are unlikely, by themselves, to justify major remediation measures except in special cases.

VII. Possible Remediation Activities

Finding solutions to blocked crossings requires first identifying the reasons for blockage. As described in this section, there are a large number of actions which might be taken to eliminate or ameliorate problems from blocked crossings. A community concerned with blocked crossings may want to consider several of these possible solutions. In addressing a blocked crossing issue, a community should always strive to work closely with the railroad, since in many cases a solution based on changes by the railroad may be the most cost-effective.

A. Community Responses

Although there are no Federal regulations regarding blocked crossings in general, FRA safety regulations do address standing (idling) trains that unnecessarily activate grade-crossing warning systems. These rules prohibit standing trains, locomotives, or other rail equipment from activating the warning systems at grade crossings unless the operations are part of normal train or switching movements. Some states and communities have attempted to address blocked crossings through legal action. The issue of a State's authority to legislate or regulate blocked crossings is highly contentious and still being defined in the courts.

The railroads have on occasion mounted "preemption" defenses, citing FRA regulations and other Federal requirements (e.g., the former Federal Railroad Safety Act of 1970 (49 U.S.C. 20106) and the Interstate Commerce Commission Termination Act) that they feel take precedence over State laws. For example, to clear a crossing in compliance with a State provision, a railroad might have to adjust either the speed or the length of its train, both of which are governed by Federal regulations. Likewise, a railroad might not be able to complete required air-brake testing at certain locations where doing so would block a crossing in violation of a State provision. Where there is a conflict between the State law and Federal safety requirements, the courts will find the State law to be preempted and, thus, unenforceable.

A better approach, both for the community and freight transportation, is to establish a cooperative relationship between the parties If the railroad and emergency responders (or the community) establish a good relationship, some relatively simple operational changes in railroad activities can do much to resolve blocked crossing problems. If both sides understand the position of the other, it is likely that a solution that at least partially resolves the problem can be reached. If the only answer is a major, long-term project (such as the Alameda Corridor East, see case studies), railroad-community cooperation is also essential. Working together, understanding each other's position and constraints, is the mechanism by which a solution that is mutually acceptable can best be achieved.

While many blocked crossings are the result of "legacy" infrastructure and development, some problems are the result of poor planning. State and local governments should consider the possible impact on emergency services from new highway-railroad crossings and new housing or commercial developments. For example, a major yard on the NS north-south line between Atlanta and Washington, DC/Harrisburg, PA is located in Linwood, NC. As traffic has grown, arriving trains often must wait on the mainline before there is room to proceed into the receiving yard. There is a road that crosses just beyond the beginning of the yard that provides access to a peninsula on a lake. The peninsula is undeveloped and is currently lightly used for recreational purposes (mostly hunting and fishing). The access road is frequently blocked for extended periods of time by stopped trains. There is no other access to the peninsula. A developer is proposing to build several hundred houses on the lakefront of the peninsula. North Carolina Department of Transportation (NCDOT) raised the issue of access to the county authorities, pointing out the safety issues. The developer and the governments have attempted to work out a solution to improve access but at this point it appears the issue of what, if any, access improvements will be built and who will pay for them will be settled in court. The ultimate outcome is unclear at this point, but thanks to the cooperation of the highway planning and rail sections of NCDOT, this issue was raised and will be resolved before the houses are constructed and hundreds of families are put at risk from being cut off from emergency services.

If grade crossing blockages cannot be reduced or ameliorated by any of the approaches that follow, communities can take steps to reduce impacts on their own. For example, communities may construct additional emergency response facilities or station emergency units on opposite sides of a railroad line, so the line need not block responders. In many larger cities, numerous response facilities greatly reduce the problem of blocked crossings because of the wide range of responder locations that can be accessed. However, in smaller communities, with few facilities, the cost of opening another fire or police station may be prohibitive. The locations that indicated to us that they had emergency response problems we found them to be mostly smaller towns and rural areas.

B. Communication

Improving communication between railroads and emergency responders can be an effective and relatively inexpensive solution. Communication systems, some of which do not require railroad participation, can alert EMS personnel to possible crossing closures from approaching trains and allow them to choose alternative routes, if necessary. This approach can be particularly effective if dispatchers are able to route emergency vehicles to open crossings or grade separated crossings before the vehicles have committed to a route that is blocked by a train.

Communication can include connecting the emergency response dispatchers by phone or radio to railroad dispatchers, as has been done is some cases. One approach that has been used is to have the railroad dispatcher inform the local EMS dispatcher or personnel when they will be blocking a crossing.

If the blockage may be lengthy or opening the crossing is critical because of some emergency, arrangements can be made to have the railroad establish a protocol to "break" a train so that it will not block a crossing. Federal Railroad Administration regulations require an air brake test before the train can be moved after it is recoupled, which means that the conductor must walk around the train to check the connections. With trains often more than a mile long, this can take significant time during which the crossing must be blocked. Breaking a train adds to railroad costs by delaying the train and must result in the crossing being blocked for up to an hour while the train is reassembled, but in certain areas it is an approach to be considered. At least one major railroad interviewed for this study has a policy of breaking trains when a blockage of more than 45 minutes is expected over most of the territory in which it operates.

A more sophisticated approach is the use of sensors near the highway-railroad grade crossing that detect an approaching train. The information on speed and location is then used by a central computer to estimate train speed and predict when a train will block a crossing. Different types of sensors are in use, including Doppler radar and magnetometers. Some systems also notify motorists of expected blockages through active signs. Examples of systems that predict train blockages of crossings include

Pomona, CA and Sugarland, TX. See Appendix I for more details. Pomona is described in A. 2 Alameda Corridor East and Sugarland is covered in D. 1. Houston.

C. Training

An important part of establishing cooperation and communication is an understanding of the requirements of both railroad and emergency response operations. One way to facilitate this understanding is through training courses such as those presented by Operation Lifesaver.[9] These courses help acquaint emergency response personnel with railroad operations and clarify procedures for contacting railroad personnel in case of emergencies.

Most public grade crossings with flashing lights or gates have a number posted that emergency responders can use to contact the railroad in case there are problems with the crossing. While the primary function of these numbers is to alert railroad personnel of malfunctions in the crossing protective device or to warn of stalled vehicles on the crossing, contact with the railroad can allow the emergency responders to request that a stopped train be "broken" to allow passage of the emergency vehicles. Although it usually takes some time to "break" the train, this may be the best alternative in cases where there are no alternative access routes to the site of the emergency.

D. Railroad Operational Changes

Routine railroad operations may leave crossings blocked and create problems for emergency responders. Generally, railroads establish their operations so as to minimize their costs and provide service to their customers. Nonetheless, railroads and their dispatchers are often aware of crossings that are routinely blocked in the course of railroad operations. In some cases, railroads can alter their operations to minimize these impacts.

In some cases, long trains can regularly block crossings during the change of rail crews. Crew change points are places on the railroad where a crew that has completed its work assignment turns the train over to a replacement crew. This process takes some time during which the train remains stopped. In some cases, there is little alternative in terms of selecting points for crew change where there is less likelihood of blocking a crossing. However, if crew change points are a problem for emergency response and general traffic, communities should consult with the railroad about possible options. At least one railroad interviewed for this study indicated that it had moved crew change points to avoid blocking crossings.

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[9] Operation Lifesaver (OLI) is a non-profit public education program established to end collisions, deaths and injuries at places where roadways cross train tracks, and on railroad rights-of-way. Sponsored cooperatively by federal, state, and local government agencies, highway safety organizations, and the nation's railroads, OLI provides free safety presentations to increase public safety around railroad tracks. State Coordinators can be found at http://www.oli.org/contact/contact_state.

Serving rail customers requires a number of rail moves to pick up and deliver cars at the customer's siding. This process can lead to regularly blocked crossings. If this is a problem, it is possible the process can be altered to minimize the length of blockages. For example, the railroad can avoid placing cars on a crossing, perhaps leaving them further up the track. Several railroads have reported that they have altered switching patterns at customer locations in an effort to reduce the time a crossing is blocked.

Longer trains may block crossings that were established when trains were generally shorter. Railroads have been increasing train length because longer trains have a lower operating cost per car than shorter trains. However, in cases where these longer trains regularly block crossings when stopped in sidings, it may be possible to negotiate with the railroad on limiting train length. At least one railroad has reduced train length in one area to minimize blocked crossings, although it raises the railroad's cost. On the other hand, shorter trains also mean more frequent trains, which can also cause community problems.

E. Public Investments

1. Grade Separations

The "gold standard" for eliminating possible delays in emergency response due to blocked crossings is grade separation. Building a highway overpass or underpass eliminates any delays from blocked crossings. Unfortunately, grade separations are expensive, typically costing several million dollars. Moreover, in many cases they are inappropriate, since the ramps can block homes and businesses located adjacent to the tracks. In some cases, the geography of the crossing can also make construction very difficult.

In many cases a proposal to provide a grade separation also involves closing some nearby crossings. The FRA advocates a "corridor approach" to grade crossing issues, looking at the risks of an entire corridor and often resulting in recommendations to provide a grade separation or two, closing some crossings and improving crossing protection at others. A corridor approach is also required for the implementation of a "quiet zone" within which train horns do not sound at crossings.[10] Closing crossings is often contentious and may

[10] "Quiet Zones" are permitted under FRA's Final Train Horn Rule, which became effective on June 24, 2005. The rule implemented a 1994 law mandating the use of the locomotive horn (or "whistle") at all public highway-rail grade crossings with certain exceptions. The rule pre-empted applicable state laws and related railroad operating rules requiring locomotive horns be sounded, and it also superseded the previously issued Interim Final Rule. Under the rule, communities have the choice to consider silencing train horns at highway-rail grade crossings based on meeting safety needs. The Final Rule provides for six types of quiet zones, ensures the involvement of state agencies and railroads in the quiet zone development process, gives communities credit for pre-existing safety warning devices at grade crossings and addresses other issues including pedestrian crossings within a quiet zone.

The Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings is available at the U.S. Department of Transportation Docket Management System web site at http://dms.dot.gov/

engender political opposition to a proposal that involves a grade separation and the closing of crossings many residents may see as more convenient.

Grade separations are generally funded by the States' DOT and local communities. Railroads are generally not legally required to contribute. Railroads maintain the crossings and so enjoy a reduction in costs when crossings are eliminated. They also perceive a reduction in liability and risk from crossing accidents. However, these gains are minor in terms of the cost of a grade separation, so railroads are usually only a limited partner in separation projects.

SAFETEA-LU reauthorized the Federal highway program in 2005. While it made several changes, it did continue to provide funding for highway-railway crossing safety. This program, section 1401 of SAFETEA-LU (also known as "the section 130 program") provides $220 million a year for crossing safety. These funds are divided among the States to address problems at thousands of crossings. Because there so many projects competing for limited funding, States have difficultly supporting multi-million dollar grade separations.

Federal Highway Trust funds can generally be used to provide partial funding of grade separations. Depending on the status of the road or highway, grade separations can be funded from accounts such as the National Highway System and the Surface Transportation Program, although the demand for these funds for "regular" highway construction tends to leave little available for grade separations.

2. Rail Relocations

Where grade crossing issues affect an entire corridor rather than a single crossing, relocating the rail line is often proposed as a solution. Railroad lines may be relocated either vertically or horizontally - that is to say a rail line may be moved up or down to separate it vertically from surface streets, or the line may be moved horizontally to a new right-of-way. Relocation is usually extremely expensive. However, it can produce significant benefits in terms of reducing negative community impacts and improving safety. There have been very few rail relocation projects in recent years. Among the projects that have been completed are the Lafayette Railroad Relocation project in Lafayette, IN, which eliminated 41 grade crossings by relocating the rail line out of downtown and the Union Pacific's construction of a 5.4 mile double-track bypass around Hastings, NE in 1994. Brownsville, TX recently completed a project begun in 1973 to relocate in-city rail yards and deactivate 79 of the city's 93 grade crossings. The project, which cost $52 million, provided smoother rail operations and took the majority of traffic from the Port of Brownsville out of the downtown business district. Another recent rail relocation project is the "vertical relocation" (the construction of a railroad trench) of the Union Pacific Railroad in Reno, NV. (See Appendix I, A. 1..)

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docket number FRA-1999-6439-3923. Additional information is located at the FRA web site at www.fra.dot.gov.

Rail relocations generally require the construction of new rail lines, which must be approved by Surface Transportation Board (STB). Approval by STB also involves completing the necessary environmental review, which can mean a full Environmental Impact Analysis if the relocation will entail extensive new construction. Usually, the right-of-way for the new line must be acquired by eminent domain from existing landowners, which can be a contentious and expensive process. If the rail line is to be removed from a downtown area, for example, the line might have to be relocated far enough from town to be in an undeveloped area, requiring the acquisition and construction of many miles of new railroad.

Another approach to rail relocations involves the agreement of two railroads that operate parallel lines to improve and use one line while abandoning the other (or limiting it to local traffic) have the advantage of reducing the amount of new right-of-way that must be acquired and constructed. The original Alameda Corridor project (Appendix I, A. 2) is an example as is the proposed "Bridging the Valley Project" in the Spokane, WA area. (See Appendix I., E. 2.)

F. Private Investments

Railroad infrastructure investments to enhance capacity may have the additional benefit of resolving crossing problems. For example, if a crossing is frequently blocked by trains parked on a siding, converting the line to double track may greatly reduce the problem. As BNSF and UP continue to convert their major transcontinental routes between Los Angeles and the Midwest from single to double track, delays due to trains awaiting oncoming trains should decline, benefiting communities such as Eloy, AZ (see Appendix). The case study on Hammond, IN (Appendix) describes how a railroad's investment in remote controlled turnouts ameliorated a serious crossing blockage problem.

Communities may be interested in working with railroads to expedite infrastructure improvements that provide public benefits as well as benefits to the railroads. The Kansas City Flyovers are an example of such a public investment in railroad infrastructure. "Flyovers" refer to separating two railroad lines by over- or under- passes, instead of having the lines cross each other at grade. The Sheffield Flyover, a 3-mile $74 million project opened in 2000, and the Argentine Connection, a 2-mile $60 million flyover opened in 2004 improve the flow of rail traffic through the city and provide significant public benefits. The Sheffield Project helped reduce delays of as many as 250 trains a day by eliminating at-grade intersections of several railroads. Similarly, the Argentine Project reduced delays for 80 trains through the Kansas City Terminal area. Each project was financed through special bonding authority, to be paid off through railroad user fees. The railroads supported these projects because they made major improvements in rail flows, while the public benefited from the elimination of significant congestion on area roads and highways that resulted when trains backed up at the rail-rail crossings.

Another successful public-private project to provide improved rail infrastructure is the Norfolk Southern Corporation's Shellpot Bridge rebuilding in Wilmington, DE. The bridge's poor condition caused the previous owner, Conrail, to take the bridge, and consequently the line serving the east side of Wilmington, out of service. Freight then had to move on other lines through the city and rail service to industries on Wilmington's east side was degraded. The parties realized that rebuilding the bridge and reopening the line would improve efficiency and capacity for north/south freight traffic, lessening freight on a passenger route, and providing economic benefits to Wilmington and Delaware. Norfolk Southern had limited capital to finance the $13 million project; however, the state used a combination of grants and loans to rehabilitate the bridge, with the loans to be repaid through a per-car user fee.

G. Technology

The railroad industry is currently exploring a number of technological advances that may serve to mitigate blocked crossing problems. Two examples are some form of positive train control and electronically controlled pneumatic brakes.

Railroads are developing positive train control (PTC) systems that can improve the safety of train operations while also providing timely information concerning the position, velocity and direction of movement of trains. The Global Positioning System and radio data link systems will help the railroads plan train movements and potentially avoid undesirable situations such as blocked crossings. Over time, information from these systems may be available for use in Intelligent Transportation Systems (ITS) applications that provide warning of potential blockages and assist in traffic control on the roads. Each of the four largest freight railroads is developing such systems, and major pilot projects are underway or planned. The Burlington Northern Santa Fe Railway (BNSF) has submitted an initial Product Safety Plan for review by FRA and states that it is committed to deploying this technology across its system over the coming years.

Electronically controlled pneumatic brakes (ECP) may potentially reduce the time it takes to break a train and then recouple and resume operations. If this technology safely permits a train to proceed after recoupling without the currently required power break test, the time a train blocks a crossing after being rejoined would be substantially reduced, making breaking a train at a crossing much more feasible. In 2005, FRA, in cooperation with railroads, rail labor, shippers, and car owners undertook an assessment of the benefits of ECP brakes. That study will soon be released. The ECP brakes will reduce stopping distance and derailments, while permitting longer trains. Improved railroad operations would be expected to reduce the time a crossing is blocked.[11]

[11] FRA may consider waivers or changes in the current Power Brake rule if experience with ECP brakes satisfactorily demonstrates the safety of such an approach.

Conclusion

It is impossible to quantify the delays emergency responders experience at blocked grade crossings. The extent of the problem can be gauged from contacts with emergency responders, states, railroads and FRA safety personnel who work in the grade crossing area. This study has identified the many different situations that can lead to blocked crossings and outlined a number of possible solutions.

All these approaches have advantages and disadvantages and no one solution works in all cases. Communities must consider the alternatives and work with the railroad to determine the most effective solution and to minimize cost. If possible, the best solutions involve addressing all the crossing issues in a corridor at the same time. That way issues such as noise, traffic congestion, economic development and safety can be considered together. While a comprehensive approach must entail more effort and probably more expense than a more piecemeal approach, the opportunities to address the sum of the problems offers the potential to build consensus on a worthwhile solution to all railroad related problems.

In almost all cases, the key to solving the problem is to establish a close working arrangement between the community and the railroad. If both sides understand each other's concerns and limitations, a reasonable solution most likely can be found.

Appendix I. Case Studies

The following cases illustrate some of the problems and/or solutions that have been discussed above. They do not represent a complete list of the communities with blocked highway-railroad crossing problems nor a list of all communities that have developed solutions.

A. Comprehensive Solutions: These cases studies represent efforts to resolve highway-railroad crossing problems (including, but not limited to, emergency response crossings) by initiating comprehensive, corridor wide programs that provide multiple grade separations and/or use a number of the solutions described above.

1. Reno, NV

When the Union Pacific Railroad (UP) acquired the Southern Pacific in 1996, one of the conditions ordered by the Surface Transportation Board was that the UP cooperate with Reno in addressing the grade crossing issues on the rail line that passed through downtown Reno. The rail corridor passing through Reno is a critical freight route from the Port of Oakland to inland destinations. The number of trains traveling through Reno was expected to increase from approximately 15 per day to as many as 34 per day as a result of the merger.

The cost of building a new line around the city was prohibitive, so a "rail trench" was built, completely separating the railroad from streets in downtown Reno. The completed project eliminated 10 highway-railroad crossings along a 2.1-mile route by taking train traffic 33 feet below ground. Without the project, vehicle delays were projected to more than double from 188 hours to 473 hours per day.

The project was partially funded by UP with the City of Reno contributing $50 million provided by a loan through the U.S. Department of Transportation's Transportation Infrastructure Finance and Innovation Act (TIFIA) credit assistance program. The TIFIA helps state and local governments construct transportation projects using flexible and innovative financing approaches. The program allowed the City of Reno to pledge different revenue streams to repay the loan and refinance the project through regular financial markets.

2. Alameda Corridor, CA

Perhaps the best example of a comprehensive solution to grade crossing blockage problems is the Alameda Corridor. Growing container traffic through the Ports of Los Angeles and Long Beach was causing major congestion in the area between the ports and rail yards near downtown Los Angeles. At the time (1981), three railroads: the Union Pacific, the Atchison, Topeka and Santa Fe (now Burlington Northern Santa Fe (BNSF)), and the Southern Pacific, served the port with three different rail lines. Trains from the ports blocked numerous grade crossings, often for long periods, because the trains moved very slowly. Trucks carrying containers from the ports to rail yards and other customers also added to the congestion.

The solution was the development of a 20-mile long grade-separated rail corridor. Linking the ports of Long Beach and Los Angeles to the transcontinental rail network near downtown Los Angeles, the Alameda Corridor is a series of bridges, underpasses, overpasses and street improvements that separate freight trains from street traffic and passenger trains, facilitating a more efficient transportation network. The project's centerpiece is the Mid-Corridor Trench, which carries freight trains from both railroads (now UP and BNSF) that serve the ports in an open trench that is 10 miles long, 33 feet deep and 50 feet wide between State Route 91 in Carson and 25th Street in Los Angeles. The project consolidated four separate low-speed rail lines to the ports, eliminating conflicts at more than 200 at-grade crossings, providing a high-speed freight expressway, and minimizing the impact on communities.

The project produced a wide range of benefits, including:

- More efficient freight rail movements
- Reduced traffic congestion by eliminating at-grade crossings
- Multiple community beautification projects
- Decreased train emissions
- Slashed delays at highway-railroad crossings
- Cut noise pollution from trains
- Reduced emissions from idling automobiles and trucks

The $2.4 billion Alameda Corridor was funded through a unique blend of public and private sources. Revenues from user fees paid by the railroads will be used to retire debts. Railroads initially paid $15.00 for each loaded 20-foot equivalent unit (TEU) container; $4.00 for each empty container, and $8 for other types of loaded rail cars such as tankers and coal carriers. Over a 30-year period, fees will increase between 1.5 percent and 3 percent per year, depending on inflation. Effective January 1, 2006, fees are $16.75, $4.47 and $8.93 respectively.

Planning began in 1981, construction in1997 and operations in 2002. The project extends through or borders the cities of Vernon, Huntington Park, South Gate, Lynwood, Compton, Carson, Los Angeles, and the County of Los Angeles.

For additional details on the project see the Alameda Corridor Transportation Authority website.[12]

The Alameda corridor used rail relocation, new rail infrastructure and grade separations to solve quite a few crossing problems.

[12]The Alameda Corridor Transportation Authority website is at http://www.acta.org/projects_completed_alameda.htm

3. Alameda Corridor East, CA

The growth of imports through the Ports of Los Angeles and Long Beach that led to the Alameda Corridor project (above), as well as increased commuter rail service, have led to sharp increases in train traffic in many areas of the Los Angeles Basin beyond the Alameda Corridor area. In particular, after trains pass through the Alameda Corridor and continue to the east, grade crossing problems occurred to the east of downtown Los Angeles. One result of the increased train traffic was the creation of the Alameda Corridor-East Construction Authority by the San Gabriel Valley Council of Governments – a consortium of the 31 cities of the San Gabriel Valley. Train traffic along the corridor is expected to increase from 69 trains a day in 2003 to 161 in 2025. Meanwhile, vehicular traffic is expected to grow 40% and vehicular delay at crossings will grow by 300%.

The goal of the $950 million ACE project is to mitigate the effects of the increased train traffic along a 35-mile freight rail corridor through the San Gabriel Valley from East Los Angeles to Pomona. It includes transportation safety improvement projects at 39 grade crossings located throughout the San Gabriel Valley. The ACE project includes grade separations at 20 of the most congested crossings, safety improvements at another 42 crossings and the Intelligent Roadway/Rail Interface System (IR/RIS), a communication system to alert motorists and emergency responders to blocked crossings. The project, when completed, is estimated to eliminate 150 accidents a year. Other benefits include reduced congestion, improvements in air quality and enhanced attractiveness to industry.

The grade separations will also improve emergency response, as will the IR/RIS system, which will allow emergency responders to select the best route to an incident. As part of this study, the FRA staff met with officials from the City of San Gabriel to determine how blocked crossings had affected emergency response. In San Gabriel, fire and police stations are located south of the railroad line, which splits the town. Stopped trains have caused serious delays in emergency response in the past, forcing neighboring emergency services to respond to calls in San Gabriel, with unacceptable delays, according to local officials interviewed for this report. The ACE Project, by providing a grade separation in San Gabriel, should reduce the emergency response problem.

B. Grade Separation

1. Belen, NM

Belen, NM is located on the west bank of the Rio Grande in Valencia County. The very busy BNSF east-west lines between Chicago, IL and Los Angeles, CA run through the heart of the city. The Belen rail yard is a stopping point for inspections, repairs, refueling, and crew changes. New Mexico Highway 314 also runs through the middle of Belen parallel to the BNSF rail line and is the city's Main Street. Highway 47 and Interstate 25 cross the east and west sides of the city.

In response to a surge in the demand for freight transportation, the BNSF plans to complete its second mainline track from Los Angeles to Chicago, through Belen. Currently, an average of 110 trains pass through Belen every day (1 train every 15 minutes). When the new mainline track is completed, this will increase train traffic to 160 trains per day. At a public hearing, the FRA Grade Crossing Manager for the region stated that as a result of the additional train traffic, affected grade crossings could be closed for 70 percent of the time.[13]

The New Mexico Department of Transportation (NM DOT) is building a train station in Belen for its new RailRunner Express, a commuter rail service between Belen and Bernalillo, New Mexico. The train station will draw added highway vehicle traffic to the area surrounding the rail line, resulting in an increase highway vehicle-train accident risk and the amount of time it takes for highway traffic to clear the grade crossing after each closure. The RailRunner will run on dedicated track parallel to the BNSF double track. Both projects will add to the number of times per day grade crossings are closed. Belen's emergency response providers would be affected by these projects.

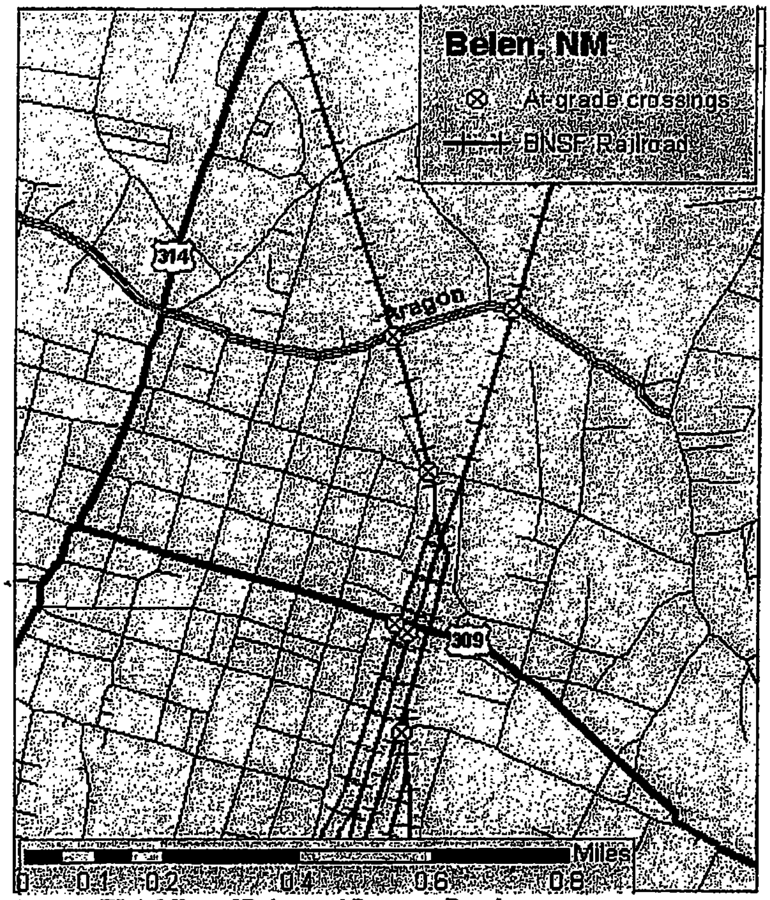
The BNSF and NM DOT have worked together to improve safety and reduce highway delay along this rail line. Initially, NM DOT notified BNSF it would have to upgrade the signal equipment at the affected grade crossings. But BNSF offered to contribute $2 million towards a grade separation at one location in exchange for an agreement with the city to close four adjacent grade crossings. NM DOT agreed and added $3 million in Federal Section 130 (Rail Safety) and Section 152 (Hazardous Elimination) funds, bringing the total grade separation funds available to $5 million. Then, the Belen Planning and Zoning Commission gained public support for the grade crossing separation and closures by hosting a series of public hearings where NM DOT, BNSF, FRA, and the general public presented their views.

Some project details still need to be addressed. If successfully resolved, the city of Belen will have a total of three grade-separated crossings evenly spaced throughout the city and a Quiet Zone by default since no at grade crossings will remain. This will allow all vehicles, including emergency response vehicles, access to all points in the city within a reasonable amount of time. The BNSF will have fewer grade crossing signal systems to maintain, as railroads are required by Federal law to maintain all grade-crossing signaling equipment.

[13] Ms. Carolyn Cook, Federal Railroad Administration Grade Crossing Manager at the Belen Planning and Zoning Commission Meeting, December 12, 2005.

This project is an excellent example of the state, community and railroad working together to address a potentially critical problem as railroad traffic grows to very high levels.

Map 1A



Source: FRA Office of Policy and Program Development

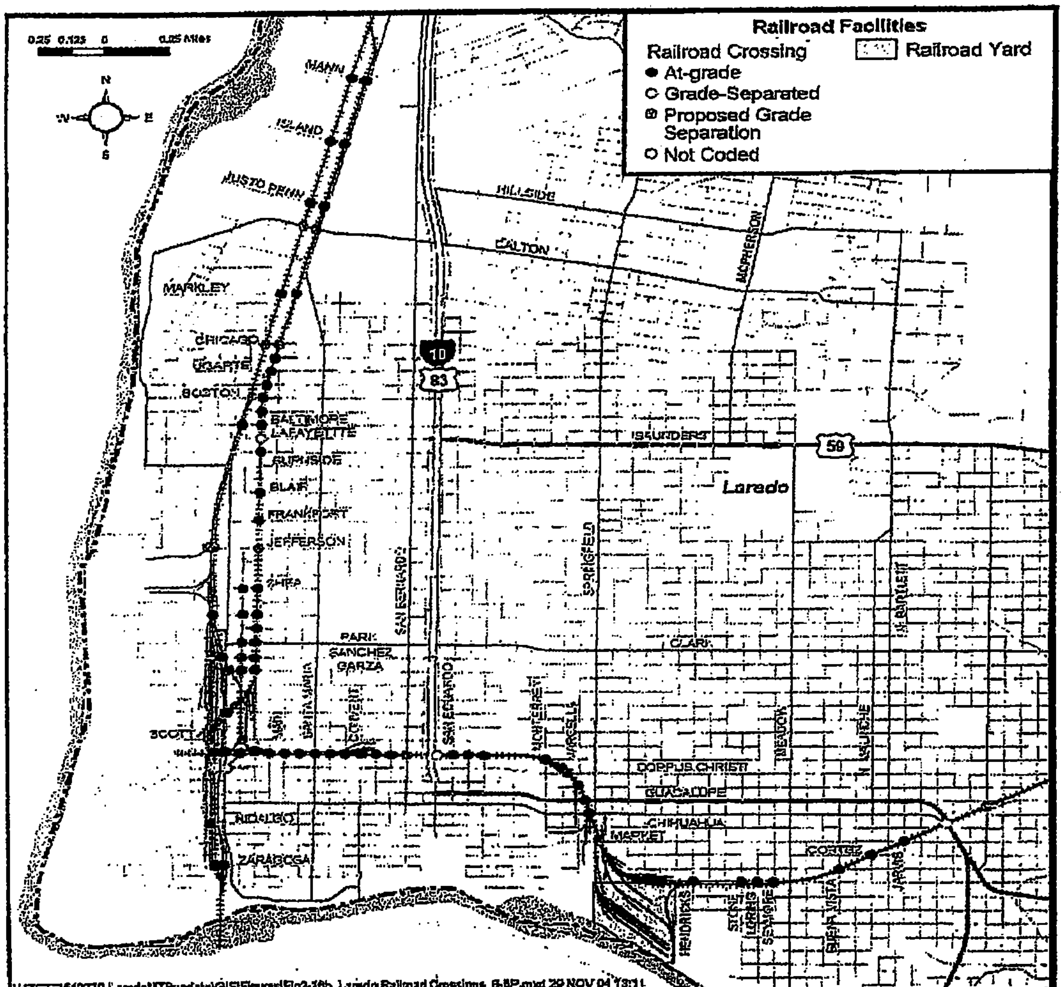
2. Laredo, TX

The city of Laredo, located in the south of Texas, is considered to be the main gateway of trade between the United States and Mexico. It is the busiest highway-railroad crossing on the U.S./Mexico border. Freight reaches Laredo from the south through the Kansas City Southern's (KCS) Transportacion Ferroviaria Mexicana (TFM) railroad subsidiary in Mexico, from the north via the Union Pacific Railroad (UP) and east by the Texas-Mexican Railroad, also owned by KCS. Highway transportation is provided mainly by

I-35, which travels north to San Antonio and handles a large amount of truck traffic. Increased freight movement has led to significant impacts on local transportation infrastructure.

All US/Mexico traffic at Laredo uses the single-track international railroad bridge in downtown Laredo, which connects TFM with Texas-Mexican/KCS and UP. The bridge is owned by KCS but UP operates over the bridge via a usage agreement. The Texas-Mexican Railroad has an east-west direction and travels to Corpus Christi then to Houston and the Midwest. The UP connects north to its mainline in San Antonio. The railroads in downtown Laredo run parallel to the Rio Grande, the border with Mexico, resulting in a long and thin strip of urban land between the railroads and the border. Each company owns a rail yard where it sorts and assembles rail cars. The UP rail yard is located about a half mile north of the international bridge and is used primarily for import and export operations. The Texas-Mexican rail yard is located to the east in central Laredo, and is used to assemble trains going out to east Texas and the Midwest or Mexico. The two railroads combined have 81 grade crossings in Laredo, plus five grade separations. Map 2A (pg. 7) shows the location of the railroads and Laredo street system.

Map 2A



Source: *Wilbur Smith Associates, 2005*

The city of Laredo has a number of major activity centers, those that attract or generate large numbers of vehicle trips, within the land strip between the border and the railroads (the area in the map to the left of the railroads). The only way to access these centers are at-grade highway-railroad crossings. This presents a problem because the large number of people going into and out of the area between the border and the railroads means a higher likelihood of emergency response calls. There are two hospitals in the downtown area, located north and east of the railroads, on the other side of the strip between the railroads and the border. In case of an emergency, the ambulance must cross the tracks to reach a hospital after a call in the strip. Due to crossing blockage, emergency response may be delayed. Fire stations are well distributed throughout the city and there are stations on every side of the rail lines. However, the police department has its main offices south of the railroads in central Laredo. This means that a police car must detour to use one of the three overpasses available if trains block highway-railroad grade crossings.

The proposed solution to this problem is the construction of 16 overpasses that would provide access to all areas at any time. This tactic is expensive and complex and will take a long time to complete. For this reason, an alternative, short-term approach is being considered that makes use of technology developed at the Texas Transportation Institute (TTI). Doppler radars, video cameras and wireless technology will be used to inform first responders about blocked crossings and the best alternative routes (see Houston in the Communications section of the Appendix).

3. Chattanooga, TN

Chattanooga (population 156,000) is located in southeastern Tennessee in Hamilton County. It is on a bend in the Tennessee River between Lookout and Signal Mountains and at the junction of Interstates 75, 24 and 59. Four railroads move traffic through Chattanooga. The Norfolk Southern Railroad (NS) runs two lines through the city; from north to south and from east to west, the CSX railroad enters the city from the west and departs to the south, with a branch to the east. The Chattanooga Belt Railroad runs from east to west through the city, while the Chattanooga and Chickamauga Railroad runs south out of the city.

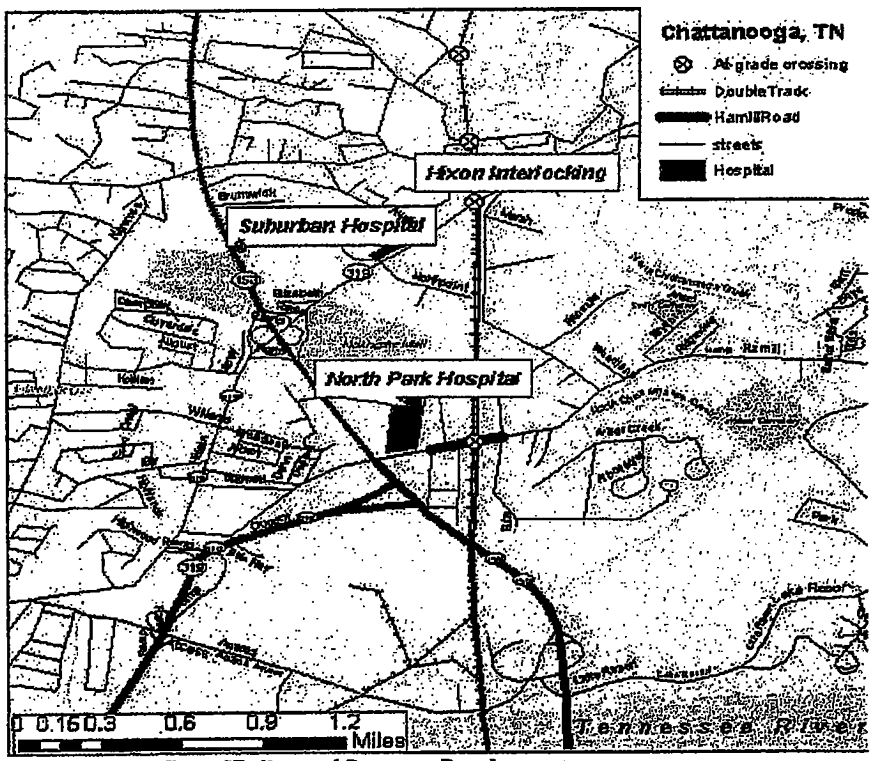
The Hamill Road Crossing is near the northern edge of Chattanooga on NS track. Between 36 and 44 trains and over 19,000 highway vehicles pass over the highway-railroad crossing each day. Auto traffic at this crossing will most likely increase due to considerable commercial and real estate development in the area.

The Hamill Road crossing is on a double tracked rail line. One mile north, the double tracks converge to single track at the Hixon Interlocking. Northbound trains sometimes have to slow down at the Hamill Road crossing to allow oncoming southbound trains to pass through the interlocking. Some southbound trains have to slow down at the crossing to drop off crews or for switching activity at Norfolk Southern DeButts Rail Yard, which is 1.4 miles to the south and just over the Tennessee River Bridge. Slow north- and south-bound trains can occupy the crossing one right after another. As a result, the Hamill Road crossing is frequently blocked from 30-55 minutes at a time. This can cause auto traffic to back up until it blocks Highway 153, one-quarter mile away, which is a designated evacuation route for a Tennessee Valley Authority nuclear plant and serves as a major traffic artery for school buses, fire trucks, and ambulances. When Highway 153 is blocked by traffic, the alternative route to cross the Tennessee River to the south can take an additional 10-15 minutes in travel time.

The city police and fire departments report the Hamill Road crossing has caused serious delays for emergency vehicles. The hospital and fire station are on the west side of the railroad tracks and about 5,000 people live to the east. The entrance to the North Park Hospital, an acute care facility, is on Hamill Road, one-quarter of a mile southwest of the crossing. Emergency vehicles and patients are delayed when the crossing is blocked.

Approaching from the east, emergency vehicles can detour about a mile to the north where there is a grade separated crossing, but that results in a delay of several minutes and then contending with the backup on the other side crossing to reach the Hospital. City officials and the Norfolk Southern Railroad have received numerous complaints from the public concerning this crossing and are working together to develop a solution. Right now, the city of Chattanooga is widening Hamill Road from two to four lanes up to the crossing so that traffic does not back up onto Highway 153. The Hamilton County Rail Authority plans to conduct a feasibility study to evaluate a highway rail grade separation.

Map 3A



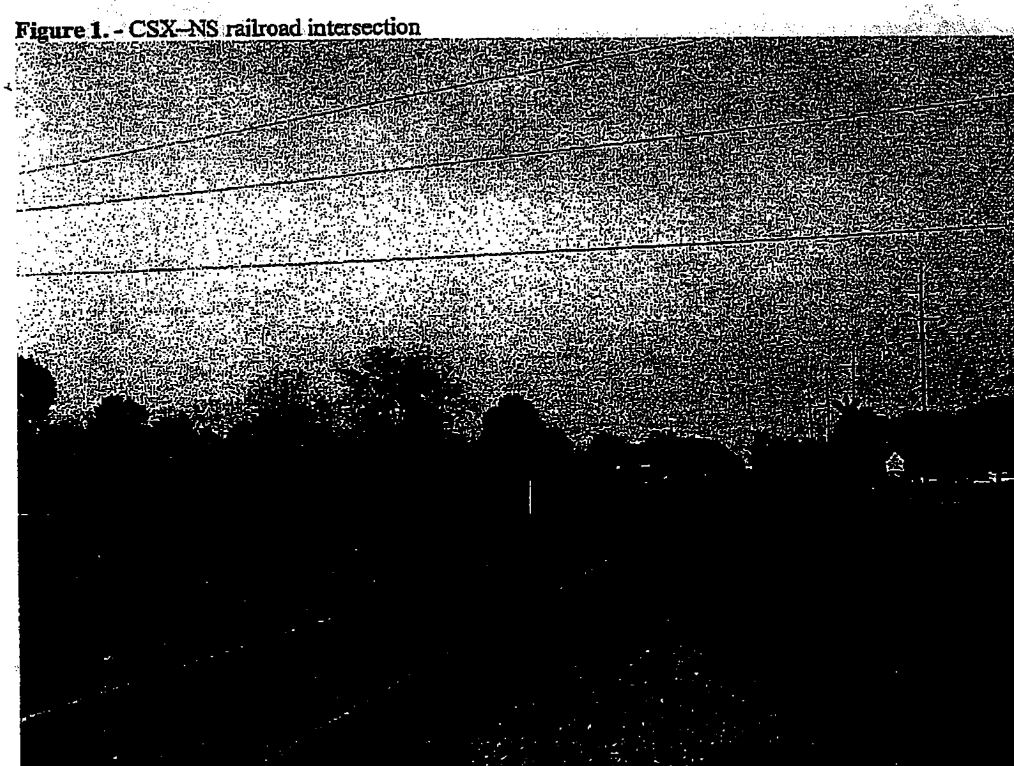
Source: FRA Office of Policy and Program Development

C. Public/Private Investments

1. Greenville, NC

The city of Greenville is located in eastern North Carolina; the city and surrounding metropolitan area have a total population of around 142,500. Greenville is intersected by the railroad lines of Norfolk Southern (NS) running east-west and CSX Corporation going north-south (see Map 4A, pg. 15). Railroad operations block local roads, causing delays in the vehicle flow between southeast residential neighborhoods and destinations in the northwest of the city. Local streets are blocked during the movement of freight trains coming southbound on the CSX line onto the NS eastern route. The problem arises because there is no track directly connecting the southbound track to the eastbound track at the intersection. Trains must proceed beyond the intersection into the nearby switching yard (see Map 5A, pg. 16). At the yard, the locomotives must "run around" the train so they will be at the other end of the train, which will be the front as the train now heads east. The train will now be pulled northbound onto the eastbound NS line, since there is a direct track connection in that direction an seen on Map 5A. In order to "turn" the train, that is, prepare it to be operated in the opposite direction, it must be broken into shorter segments at the yard, because the yard is not long enough to hold the entire train and thus allow the locomotives to "run around" the train on one of the yard tracks. After the locomotives are on the north side of the train segments, they recouple the segments and proceed north and east to the customer. This switching back and forth blocks the roads at either end of the yard for substantial periods of time. The North Carolina Department of Transportation (NCDOT) reports that blockages can last up to 3 hours two times a day, often at peak travel times on roads with volumes ranging from 16,000 to 30,000 vehicles per day. This means commuters, school busses, and emergency vehicles cannot pass through the rail corridors.

Figure 1. - CSX-NS railroad intersection



Source: *Federal Railroad Administration, Office of Policy*

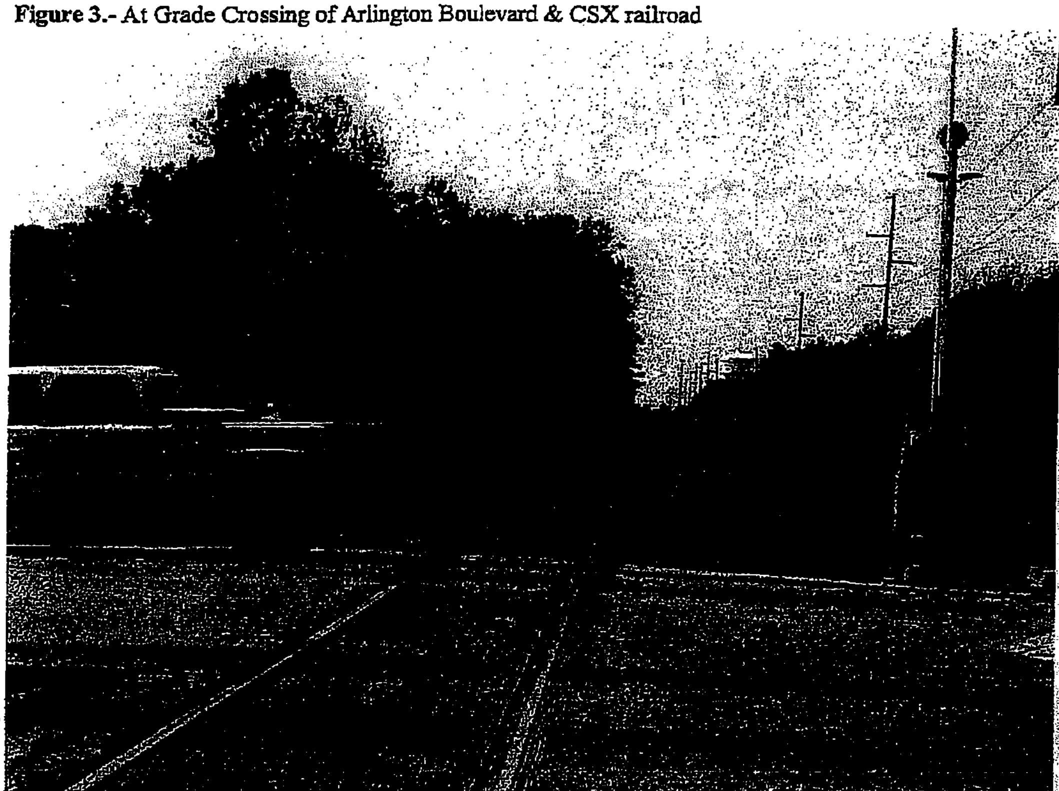
In Figure 1, the CSX track runs from the bottom left (south) and the NS line runs across the figure horizontally. Currently, CSX trains proceed past this crossing to a yard, where the locomotives are moved to the opposite end of the train, the new front of the train, and the train then uses the connecting track shown in Figure 4 to proceed eastward (left in this picture). A direct connecting track running to the left in Figure 1 between the CSX line and the NS line would eliminate blocked crossings caused by the need to move locomotives to the opposite end of the train.

Figure 2. – CSX rail yard and Howell Street

Source: ***Federal Railroad Administration, Office of Policy***

Figure 2 illustrates the proximity of Howell Street to the north end of the CSX rail yard and how trains will likely block the crossing.

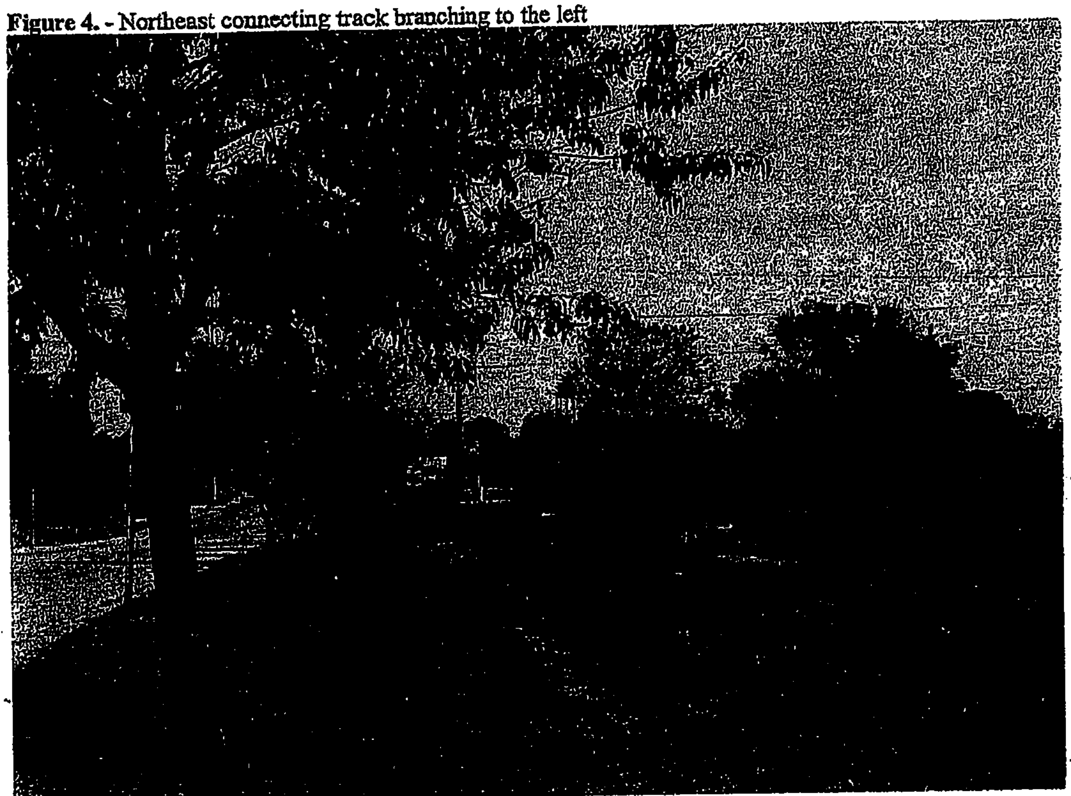
Figure 3.- At Grade Crossing of Arlington Boulevard & CSX railroad



Source: *Federal Railroad Administration, Office of Policy*

Figure 3 above shows the at-grade crossing of Arlington Boulevard and the CSX Transportation rail line. Arlington Boulevard is at the southern limit of the yard. This artery serves as access road for a high school, located next to the yard. To the left of the picture is a residential area and people travel to the right to get to school, work and, if needed, medical services.

Figure 4. - Northeast connecting track branching to the left



Source: *Federal Railroad Administration, Office of Policy*

Figure 4 faces north and shows the CSX line and the track heading off to the right that connects directly with the NS line to the east. The intersection of the two lines can be seen in the center of the picture. (Figure 1 was taken on the other side of the crossing in the center, looking south.)

A 2006 study prepared for NCDOT by Ralph Whitehead Associates concludes that these negative railroad impacts can be mitigated by two projects. One is the construction of a south-to-east connecting track at the intersection of NS-CSX lines and the other is relocating CSX rail yard from downtown Greenville to a site north of US 264. The construction of the southeast connecting track would prevent trains from blocking Arlington Blvd and Howell St as direct south to east travel would now be possible. Relocation of the switching yard would move rail car sorting operations out of the city and limit the remaining impact on the CSX line to a smooth movement of freight through the urban area. Table 1 shows the costs and benefits of the two projects. Total construction costs for the two projects amount to $2.9 million. These projects also result in fuel and labor savings for the railroad companies estimated to total $467,298 per year.

Table 1. - Costs and Benefits Estimates

Total Construction Costs	Rail yard	$2,144,340
	South to East connector	$822,090
Benefits Per Year	Labor Savings	$467,298
	Fuel Savings	$158,080

Source: *Ralph Whitehead Associates, Inc.*

This project is still in its preliminary stage and stakeholders will need to coordinate and agree on many details. Some of the matters to be resolved include agreements between the railroads on granting each other operating rights on their tracks and whose trains should proceed first over jointly used tracks. The City of Greenville also needs to consider the plans that Eastern Carolina University has for a number of properties surrounding the study area that could potentially be affected by the project. [14]

[14] References:

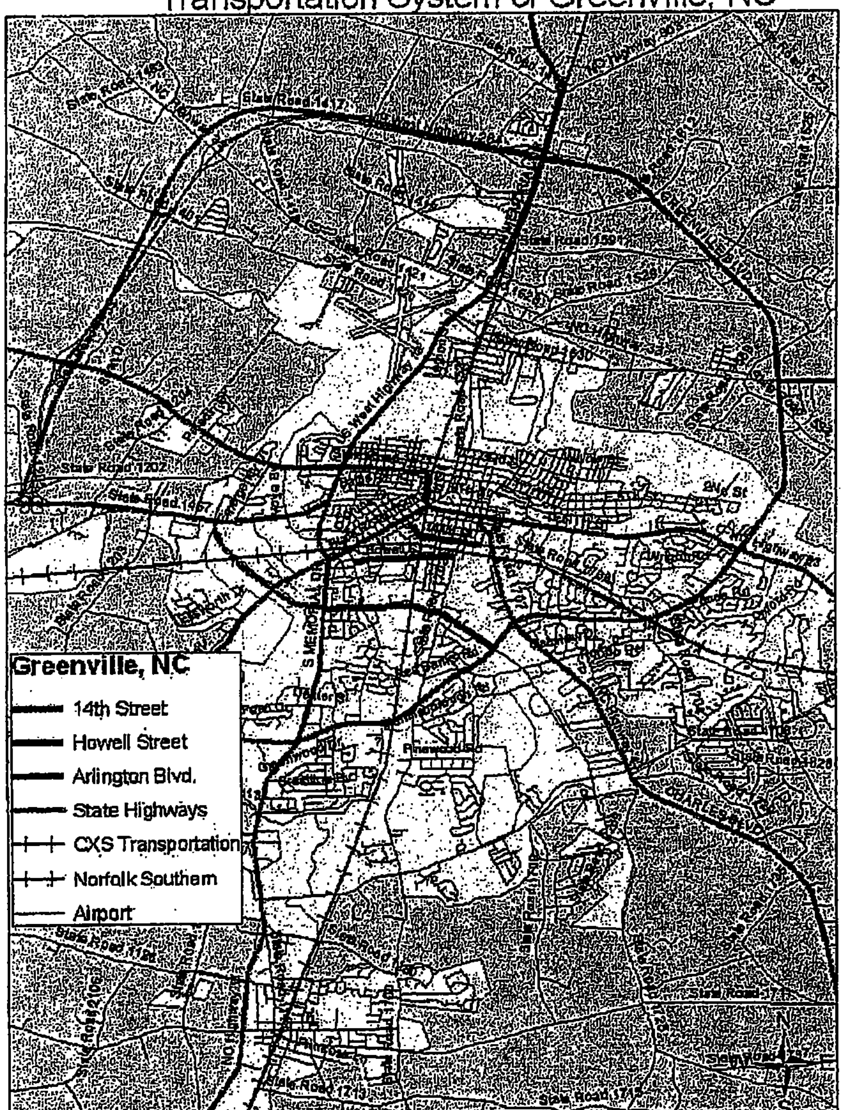
Dehler, B.D. (2006). *Greenville Traffic Separation Study -Phase1 (DRAFT).* RalphWhitehead Associates, Inc.

Greenville-Pitt County Convention & Visitors Bureau. April 28th, 2006. http://www.visitgreenvillenc.com/

United States Census Bureau. **American Factfinder**. April 28th, 2006. http://factfinder.census.gov/home/saff/main.html

Map 4A

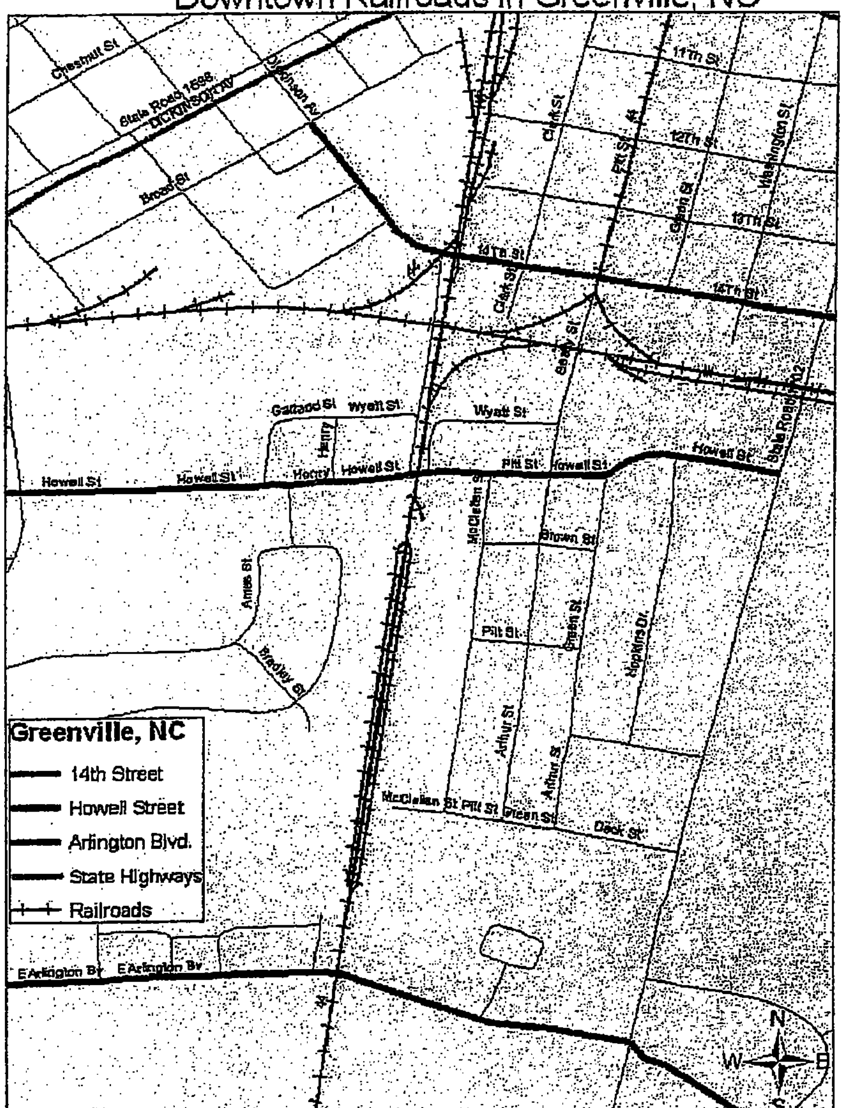
Transportation System of Greenville, NC



Source: Federal Railroad Administration, Office of Policy

Map 5A

Downtown Railroads in Greenville, NC



Source: Federal Railroad Administration, Office of Policy

2. **Fayetteville, NC**

Fayetteville is the sixth largest city in North Carolina and the county seat of Cumberland County. Located along the Cape Fear River, this city of 60 square miles has a population over 120,000.[15] Three railroads - CSX, the Norfolk Southern (NS), and the Aberdeen and Rockfish - traverse the city, resulting in 183 private and public at-grade highway-railroad grade crossings. Train volumes at each crossing vary from 3 to 39 trains per day.[16]

The CSX and NS rail lines enter the city from the northwest, north, and northeast corners of the city, crisscross each other along one of Fayetteville's central thoroughfares, where they also traverse the Aberdeen and Rockfish Railroad, which runs east to west. The CSX and NS rail lines continue out of the city towards the southwest, south, and southwest.

The dense web of Fayetteville's roads and railroads increases the probability of grade crossing accidents and auto traffic delay, especially in the central city, where all three rail lines intersect and conduct switching activity, often stopping at the grade crossing for more than 30 minutes at a time. When a grade crossing is blocked for such a long interval, it has a significant effect on auto traffic delay and, potentially, emergency response, especially during the morning and evening rush hours. This delay can affect the public services provided by hospitals, schools, fire and rescue stations.

The NCDOT has completed a Traffic Separation Plan for Fayetteville designed to improve highway-railroad grade crossing safety and to mitigate grade crossing traffic delay. The plan evaluated 52 grade crossings for potential closures, roadway improvements, signal upgrades and grade crossing separations. In North Carolina, the railroads and the state pay all the costs of closing grade crossings and any associated mitigation projects, although the state pays for grade separations.

The state, the city CSX and NS are planning two rail realignment projects, financed in part by Federal funds. The first realignment involves constructing a connection track between two CSX lines entering Fayetteville from the north. One track is the heavily used CSX "A" line and the other serves the Fort Bragg military base and is essential to the movement of military equipment. The second realignment will connect the NS main track to the Milan Yard. As a result, some railroad track and several grade crossings will be removed. These two new track improvements will allow all three of the city's railroads to reroute traffic from downtown Fayetteville to the Milan rail yard on the city's outskirts and hence eliminate the current midtown pushing and pulling of trains as they conduct switching activities.

These cooperative efforts among the state, city, and the two Class 1 railroads will result in less traffic delay for all vehicles including emergency responders, less chance of rail-

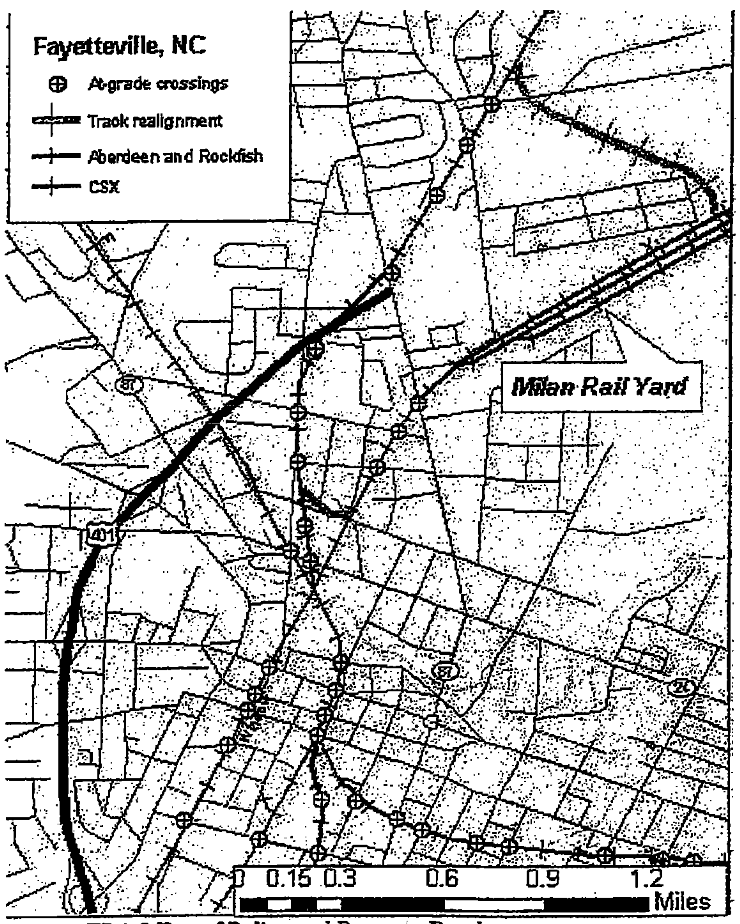
[15] US Department of Census, American Fact Finder, 2006.

[16] Federal Railroad Administration; National Grade Crossing Inventory Database, 2006. This includes 117 public and 64 private at-grade crossings.

highway vehicle accidents, and improved movement of freight in and around the city of Fayetteville.

These projects demonstrate a comprehensive approach to crossing issues in Fayetteville. By adding rail connections, relocating rail lines, closing grade crossings and providing safety upgrades at remaining crossings, Fayetteville should see reduced traffic delays and improved safety. These projects also illustrate a cooperative effort involving several railroads, the state and the city. Funding also will come from a wide variety of sources, ranging from the railroads to the federal government.

Map 6A



Source: FRA Office of Policy and Program Development

D. Communications and Monitoring

1. Houston, TX

The Houston area may have more grade crossings than any other city of comparable size in the United States, because of its role as a major railroad and industrial center, and its location in a flat, low lying area. Railroads in many cities follow river bottoms, often in valleys well below the surrounding land, which has led to grade separations when highway bridges are built connecting hills on either side of the river. In Houston, highway bridges across non-navigable waterways do not need to be elevated above the adjacent railroad tracks because the terrain is so flat. Moreover, underpasses, for either highways or railroads, are subject to flooding. As a result, Houston has had serious grade crossing issues.

Faced with delays at grade crossings, two rail monitoring systems have been implemented in the Houston area. Within the City of Houston, a series of 18 cameras were placed at critical grade crossings in 2005. This is part of TransLink, the intelligent transportation system (ITS) research program of the Texas Transportation Institute (TTI). The web site http://traffic.houstontranstar.org/cctv/railroad/ provides video from these cameras. Emergency responders as well as citizens can use these videos to see if a grade crossing is blocked. The usefulness of the system depends on the emergency responder or the dispatcher taking the time to check the cameras. If they have access to the internet, that can be done quickly. If the crossings on the route to the scene of an incident are rarely blocked, responders often do not take the time to check.

In nearby Sugar Land, Texas, a more elaborate system was installed in 2002. In cooperation with Texas DOT, TTI developed the Sugar Land rail monitoring implementation project. Funding for the program also came from the U.S. DOT ITS Priority Corridor Program. The system monitors all the crossings on a 6.4 mile rail corridor. TTI developed a train detection/projection system for the corridor and a graphic display (available on line at http://traffic.houstontranstar.org/rail/). The system indicates real time train status and arrival time projections at the various crossings. Kiosks displaying this information are provided at two fire stations and at the police/fire communications center. The train detection is based on a Doppler radar system at each crossing connected by cellular wireless communications equipment to the central system.

The Sugar Land system, unlike the monitoring system in Houston, was designed particularly for the need of the emergency response community. It has prevented at least one very serious incident when a truck carrying sodium hydroxide, an extremely hazardous chemical, stalled on a crossing. Police dispatchers spotted the stalled truck and saw that a train was approaching at 44 miles per hour. The dispatcher immediately alerted the railroad and police units to the situation. Dispatchers continued to monitor the train's location and speed as it drew closer to the disabled truck. Alerted to the problem, the train crew was able to safely stop the train before a collision occurred. A collision that resulted in a spill would have required a full evacuation of the area.

TTI, a part of Texas A&M University, has also installed a similar system in College Station, TX. The College Station community is split by a rail line carrying 20-24 trains a day. Train speeds vary from 10 to 45 miles per hour and the gates at crossings may be down from 1 to 10 minutes. Using a system of sensors mounted on poles located off the railroad right of way, this system uses solar power to operate the radar and wireless communication system. College Station does have fire stations on both sides of the track, providing some flexibility in dispatching. The system includes a display kiosk that is located in the fire house on the route used by emergency personnel to reach the fire stations bays where the emergency vehicles are positioned. Responders can check crossing status as they go to their vehicles. A system with both cameras and radars was preferred, since the Doppler radars do not detect stopped trains that may be blocking a crossing. Emergency responders have been rerouted about 15-18 times a year.

With the research completed, a system such as that at Sugar Land can be relatively inexpensive, depending on the length of the corridor, the number of radars and or cameras used and local conditions. The components are "off the shelf." While experience indicates the system is reliable, it is essential to determine who is responsible for maintenance.

2. Albany, OR

Albany, Oregon, is located in Linn County in the central Willamette Valley in Oregon, bordering Interstate Five. Albany has a population of approximately 43,000. Queen Avenue is a centrally located main East-West route through Albany. One main line track and three yard tracks cross over Queen Avenue at this location. One block away, the west side of the crossing connects at an intersection to the main highway (Hwy. 99). The crossing is equipped with gates and cantilever flashing lights.

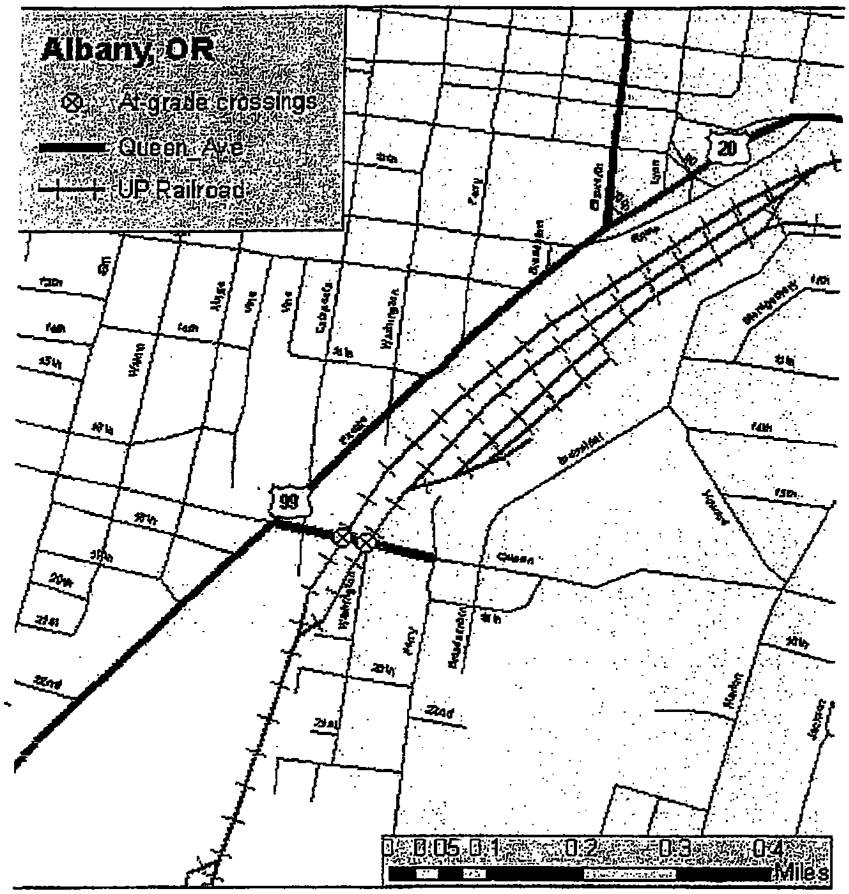
The Queen Avenue crossing is on the Union Pacific Railroad (UP) north-south mainline between California and the Pacific Northwest. It is at the south entrance to the UP yard, currently leased to the Willamette & Pacific Railroad. The yard, once used by a single freight railroad, currently serves one Class I railroad (UP), two short line railroads (the Willamette & Pacific Railroad and the Albany & Eastern Railroad) and Amtrak. There are six Amtrak trains, approximately 25 through-freight train movements and 125 switching movements over the crossing each day. The average daily auto traffic count is just over 16,000.

In 1980, the Public Utility Commission of Oregon (PUC) granted the Southern Pacific Railroad (the UP's predecessor) a variance to the blockage rules the Commission had established stipulating the amount of time a railroad could block a crossing. The PUC variance extends the amount of time the railroad can block the crossing from 10 to 20 minutes at a time. This increase in blockage time can only be applied to road trains, not switching movements, and cannot be used during designated rush hours (between 6:00am to 9:00am and 4:00pm to 6:00pm). The railroad must use outlying sidings for set outs and pick-ups. Because a 20 minute grade crossing blockage will cause significant delay for all highway vehicles, including emergency vehicles, the railroad is required to give at least 1-hour advanced notice to the city of Albany before blocking the Queen Avenue crossing. Oregon also requires the railroads to coordinate road closures and re-openings with the public authority during blockages.

The Oregon State Department of Transportation Rail Division receives at least one blockage complaint per day on this crossing, but often more, due to railroad operations at this crossing. Traffic queues grow quickly. When the railroad completes its move and clears the crossing for a minute or two, traffic will have typically backed up onto the highway and to the east approximately one-quarter of a mile. When the railroad resumes switching over the crossing, traffic that was previously queued may once again be stopped. Railroad operations affect traffic flow and create mobility issues from the east to west side of Albany. Upon approaching Queen Avenue from either direction, should the crossing be occupied, there is some opportunity for motorists to choose an alternate route, which makes this crossing an excellent candidate for intelligent signaling. However, Queen Avenue is only one part of a larger congestion problem in Albany, so that frequent blockages at this crossing during rush hour can cause significant delays throughout the area.

Currently, ODOT, the railroads, and local governments are reviewing a number of options to alleviate the motor vehicle congestion issues in the Albany region. Unfortunately, there is no room for any type of yard expansion. While any complete solution will take time and likely be expensive, a warning/communication system such as used in Sugar Land might provide an interim step to reducing the problem.

Map 7A



Source: FRA Office of Policy and Program Development

E. Rail Relocation

1. Hidalgo County, TX

Hidalgo County, TX (population 658,248) is a fast growing rural area located on Rio Grande River at the southern most part of Texas near Brownsville. Its population grew 19.1 percent from 2000 to 2005, compared to 9.6 percent for the state of Texas, and 5.3 percent for the entire US for the same time period.[17] Most of the county residents live and work near the railroad-highway configuration described in this section.

Hidalgo County's rail lines and highway network provide intermodal freight transportation between the United States, Texas and Mexico. While intermodal transportation is key to the area's current economic prosperity, long traffic delays at

[17] US Census Bureau, Population Finder, www.census.gov.

highway-rail grade crossings have become a costly and dangerous problem for all transportation users, including emergency vehicles.

This is especially so along a stretch of rail track owned by Rio Valley Switching Company (RVSR) short line railroad that extends 65 miles from the Union Pacific Railroad's (UP) Harlingen Rail Yard westward through Hidalgo County, into the small interchange yard in the City of Mission, before connecting with the Border Pacific Railroad (BOP). RVSR track runs parallel to US Business 83. Warehouses and transloading facilities along US Business 83 use team tracks (rail sidings that are accessible to trucks) to transfer freight from truck to railcars on the RVSR track.

The RVSR traffic includes agricultural products, paper, and other manufactured goods that have been trucked across the Mexican border over three international bridges. All RVSR traffic is interchanged with UP at the Harlingen Rail Yard, but RVSR does not have access to the Harlingen Yard to switch or sort cars. Instead, RVSR brings entire trains of unsorted cars to Mission Yard, where cars are blocked in groups for local customers. The Mission Yard has no yard lead track and very little storage capacity. Hence, rail operations at this yard often block adjacent grade crossings on major thoroughfares, including US 83, for over 30 minutes at a time. The condition of the rail track in this area is so poor that the maximum train speed is limited to 10 miles per hour.[18] Since many of the trains handled by the RVSR are 100 cars long, through trains can block a crossing for 5 minutes at a time.

Local government entities approached RVSR to discuss relocating its rail line away from Business 83 when they first began operations in 1993, after purchasing the line from UP. But RVSR and their customers argued that the combined costs of relocating the rail line and the warehouse facilities in the immediate area made this proposition financially impractical.

Train traffic volumes on the RVSR line have grown from 2,700 carloads in 1993 to 11,000 carloads in 2003. Growth is attributed to the railroad's ability to provide specialized customer service. Because Hidalgo County is so far from any major urban area, there is little direct competition from the trucking industry.[19]

While the railroad acknowledges serious operating constraints, RVSR hopes to nearly double its 2003 traffic volume to 20,000 carloads by 2010. To accomplish this, RVSR would like to build an intermodal terminal. Local business development groups support this type of investment to encourage growth. Toyota recently decided against development in Hidalgo County for lack of intermodal access.

Hidalgo County Metropolitan Planning Organization (HC MPO) has commissioned the Hidalgo County Rail Study to evaluate a series of at-grade roadway enhancements, adjustments to railway sidings, grade separations, and railroad track improvements as

[18] Hildalgo County Rail Study, Hildalgo County Metropolitan Planning Association, February 28, 2005, p. 12.
[19] Id. at 12.

short and mid-term solutions. The roadway enhancements would improve safety and traffic flow. The adjustments to railway sidings would facilitate switching and sorting operations in the Mission Yard. Grade crossing separations would eliminate all highway-rail problems at the separated crossing and could alleviate traffic congestion at adjacent crossings if traffic is successfully redirected. The railroad track improvements would allow trains to travel at higher speeds to reduce the amount of time crossings are blocked for each through train.

In the long term, the Rail Study recommends relocating railroad track and building an intermodal yard. The HC MPO Rail Study proposes using multiple sources to fund these projects. The study states that the track siding improvements and track upgrades may qualify for the Short Line and Regional Railroad Rehabilitation Tax Credit Program.[20] But since the total value for this tax credit program is capped, it is likely that the funding for the siding improvements would have to come from a combination of funds from RVSR, online shippers at affected sidings, and local municipalities. Shared funding would be justified by the shared benefits of the improved sidings including improved rail service and reduced grade crossing delay.

The grade separations may be eligible for funding under the Federal Highway Administration's Surface Transportation Program (STP) apportionment for Texas, although the projects must compete with many other eligible highway projects in Texas. Funds from this program may be used to provide up to 80 percent of the funding, with the remaining 20 percent provided by state or local entities. Within the State of Texas, the Unified Transportation Program (UTP) provides the 20 percent matching funds for their Grade Separation Program.[21]

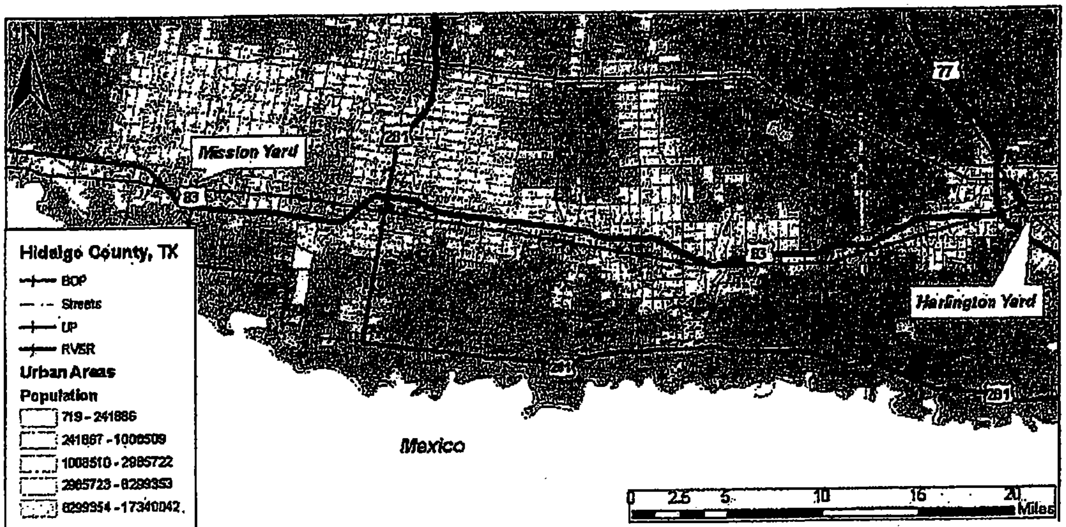
The rail relocation and intermodal facility are costly investments and require further study. HC MPO Rail Study identifies these projects as good candidates for a Railroad Rehabilitation and Improvement Financing (RRIF) loan from FRA.[22]

[20] The Short Line and Regional Railroad Rehabilitation Tax Credit (26 USC 45G) provides a tax credit of 50 cents on the dollar for every dollar invested in track rehabilitation or maintenance, not to exceed $3,500 per mile. The credit is available every year but expires at the end of 2007.

[21] Hildalgo County Rail Study, Hildalgo County Metropolitan Planning Association, February 28, 2005, 1p. 39.

[22] The Railroad Rehabilitation & Improvement Financing (RRIF) Program, administered by FRA, provides direct loans and loan guarantees up to railroad-related projects. For more information, see the FRA website: http://www.fra.dot.gov/us/content/177

Map 8A



Source: FRA Office of Policy and Program Development

2. Spokane, WA

The "Bridging the Valley" program is a community-initiated project to explore creation of one common railroad corridor over which BNSF and UP would operate between Spokane, WA and Athol, ID. This 42 mile two-railroad corridor presently has 72 grade crossings with over 70 trains a day. The UP and BNSF lines are roughly parallel, a mile or two apart. Growth in train traffic is forecast to increase annually by 3.4 percent over the next 20 years.

The project would move UP's operations onto a triple track railroad along the BNSF corridor, although local rail service to customers on the UP would be retained. The project would eliminate approximately 51 at-grade crossings through closure and the relocation of the UP line. The remaining 21 crossings either are or would be grade separated. The total cost was estimated at $252 million in 2001 dollars.

While not primarily a response to emergency response issues, reduced traffic congestion and crossing delays should benefit emergency response in the areas while also improving crossing safety and reducing emissions in a serious non-attainment areas. Although total funding for the project has not been secured, work has begun on some parts of the project.

F. Grade Separation, Line and Yard Relocation

El Paso, TX

The city of El Paso is located in far west Texas at the tip that meets New Mexico and Mexico. In 2005, the area had a total population of 721,598. The El Paso region is at a strategic location in the midpoint of the Southern California-East Texas route and at the border with Mexico (Map 9A, pg. 31). The community has a high level of passenger and freight movement. The region is served by two railroad companies: Union Pacific (UP) and Burlington Northern Santa Fe (BNSF). UP has two routes serving the region, the Sunset Route which travels from southern California to East Texas and Louisiana and the Tucumcari line which connect El Paso with Kansas City and the Midwest. BNSF has one line traveling north to its main route in Albuquerque, New Mexico. UP and BNSF lines are connected with Ferromex (FXE) in Mexico by two bridges over the Rio Grande river. The El Paso metropolitan area has 141 at-grade crossings. The high number of highway-railroad crossings creates safety and congestion problems.

<u>Zaragoza Road</u>

One problem crossing is the Zaragoza Rd crossing, an important arterial highway. Zaragoza Road is in the east side of the city and travels north-south, serving residential, commercial and industrial areas along its corridor. This road is crossed at-grade by the double track of the UP Sunset Route. Map 10A (pg. 32) shows the location of this road in the study area and the direction it follows from the north limit near IH-10 to the south at the Ysleta International port of entry. Congestion in this arterial is forecast to increase in the mid-term as adjacent vacant land is developed. New residential neighborhoods and retail facilities are being developed to the north of I-10. Also, railroad traffic on the Sunset line has increased due to intermodal freight moving from the Ports of Long Beach and Los Angeles (see previous discussion of Alameda Corridor and Alameda Corridor East) to Texas and the Midwest. In 2003, Moffat and Nichols Engineers reported that there were 40 trains traveling over the Sunset line but the freight traffic has probably grown since then. Of those 40 trains, 25 percent divert to the Tucumcari line to the Midwest, the rest continue to travel east on the Sunset Route to Dallas, Houston and the south

Figure 1F. - Sunset Route and Zaragoza Rd. in El Paso, Texas

Source: El Paso Metropolitan Planning Organization, 2006

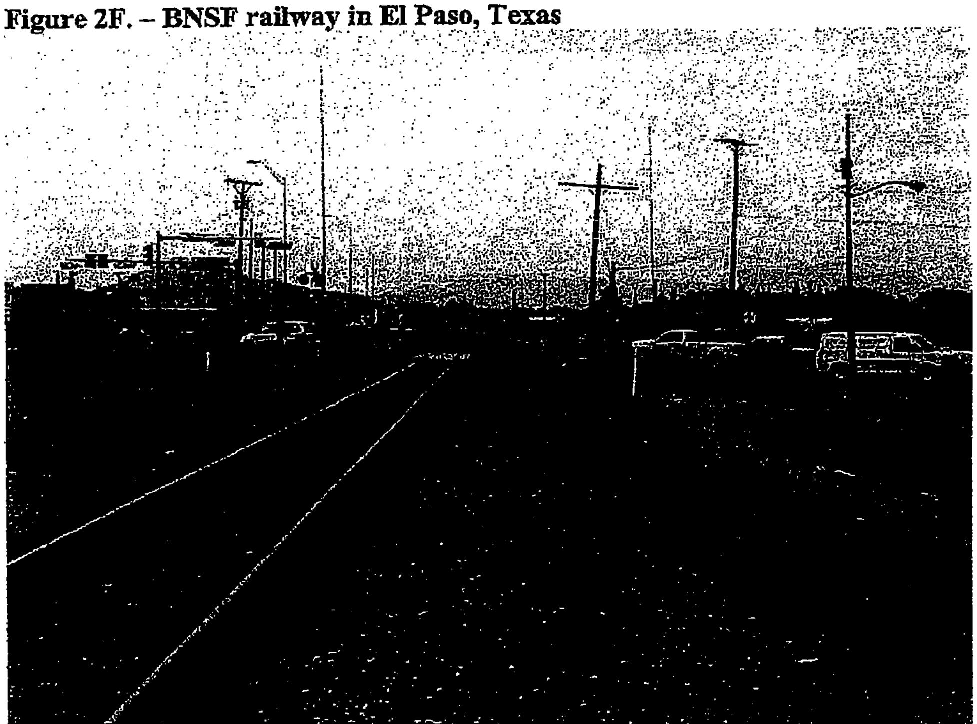
The picture above shows the Sunset Route Zaragoza Road at-grade crossing. The El Paso MPO considers that this crossing presents a problem for effective emergency response. The railroad is between a major entertainment center and the regional command center of that area. An officer from the El Paso Police Department reported an incident when he was struggling to contain a brawl at the Speaking Rock Casino and, as the incident involved multiple individuals, he requested support from the police central command. At the moment when the other police cars were on their way to the nightclub to help their colleague, a train blocked the Zaragoza Road crossing which prevented the needed support to reach the scene immediately. Once at the blocked crossing, it would take longer to do a U-turn and go through the nearest separated grade crossing, thus, police cars decided to wait. The blockade lasted only for a few minutes and reinforcements eventually arrived at the incident location without serious consequences to the first officer on the scene. However, these types of incidents have the possibility of tragic results because they require immediate response. Medical services face the same type of problems in this area as most hospitals and providers are adjacent to I-10. Residents near Zaragoza Road must travel north to arrive to the closest hospital and face the same problem as the police department did in the example.

The El Paso Metropolitan Planning Organization's long-term transportation plan projects an overpass construction in this location by 2015 but no funds have been allocated. This project seems to be the best solution because the source of the problem is the amount of both railroad and automobile traffic passing through this crossing. The crossing is a six-lane divided road and a double track railroad. The total cost for this project is $9,312,360 and no cost-benefit analysis has been carried out. Unquantified benefits include reductions in emissions, delay and accidents, as well as the intangible benefit of improved emergency response.

<u>Doniphan Road</u>

The Burlington Northern-Santa Fe line connecting El Paso to the BNSF main east-west line in central New Mexico passes through the west side of El Paso from the yard in downtown El Paso. This line handles about four through trains a day and two local switching trains. The rail yard is also connected to Ferromex (FXE) through two international bridges in downtown El Paso. Currently two trains are exchanged daily.

Figure 2F. – BNSF railway in El Paso, Texas



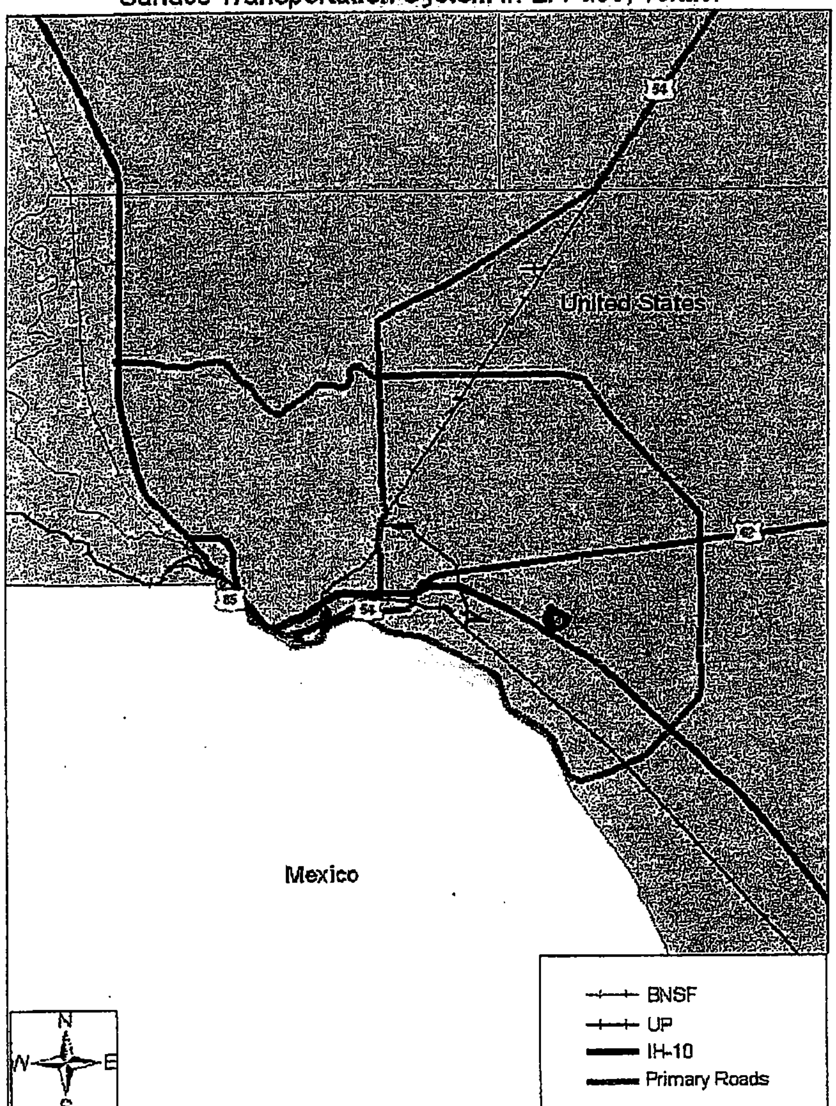
Source: El Paso Metropolitan Planning Organization, 2006.

Doniphan Road runs parallel to the BNSF rail line. Local streets intersecting Doniphan also intersect the railroad. This causes problems as cross traffic may be stopped by traffic lights at Doniphan Road and then again at the grade crossing. Emergency responders are delayed when trains are in the crossings, especially those trains conducting switching operations. Blocked crossings are an issue because the zone to the west of the railroad is mainly residential and rural and first responder facilities are located more toward the center of town to the east. Figure 2F shows the BNSF railroad and the intersection of Doniphan Rd and Sunland Park Dr. The railroad separates emergency responders located to the left in this picture from residential areas to the right. Map 10A shows the layout of the zone and location of the police department. As can be seen, responders may be forced to take alternative longer routes that increase the time of response substantially.

Moffatt & Nichols Engineers carried out a study in 2003 on the overall railroad infrastructure in El Paso and recommended the construction of a new port of entry, rail yard and a fly-over crossing. The new port and rail yard is suggested to be located west of El Paso in Santa Teresa, New Mexico and would include a fly-over at the railroad-railroad crossing between BNSF and UP railroads. The railroad-to-railroad separated crossing is necessary so easy and fast operations are possible for both BNSF and UP. The project is at a very early stage and needs coordination between all the stakeholders, including the federal government, three railroads, two states, local authorities, and the Mexican government.

Map 9A

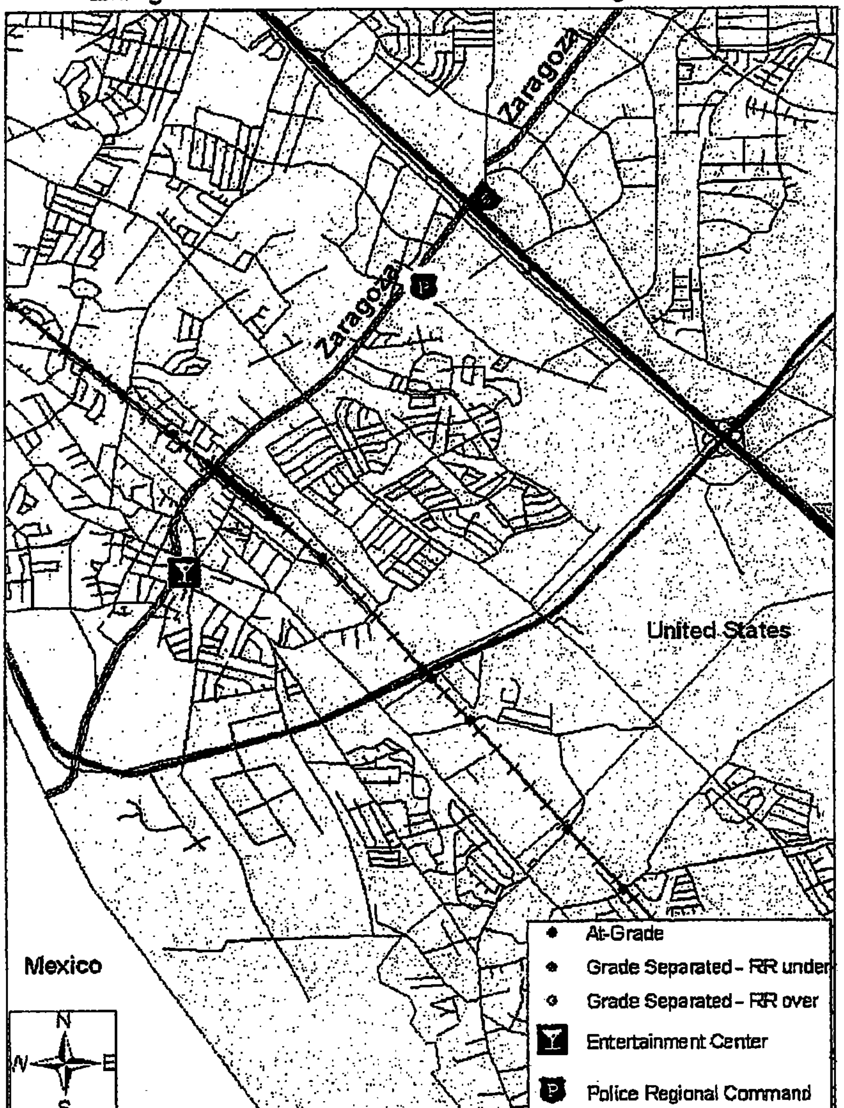
Surface Transportation System in El Paso, Texas.



Source: Federal Railroad Administration

Map 10A

Zaragoza Road and Sunset Route Crossing in El Paso Texas



Source: Federal Railroad Administration

G. Private Investments in Railroad Infrastructure

In these cases, private investments by the railroad have or will ameliorate delays due to blocked crossings.

1. Hammond, IN

One contributor to crossing delays is the need to throw manual turnouts (switches). A crew member (usually the conductor) must get off the train, move the switch to the desired direction, and wait as the train pulls through. After the train has cleared the turnout, the crew member must walk back to the locomotive before the train can proceed. These delays can be avoided if remote controlled turnouts are installed. These powered turnouts, remotely controlled by dispatchers or tower operators, can be changed before the train arrives and, if needed, returned to the original position after the train passes without requiring the train to stop. While the railroad obviously gains a benefit from speeding its operation, such improvements can be expensive, costing perhaps as much as $500,000 each and requiring more maintenance than manual turnouts. However, in some cases, powered turnouts can provide substantial benefits in terms of reducing the length of time that crossings are blocked.

Hammond, IN experienced serious delays at crossings due to trains stopping while switches were thrown. By automating the Osborn Interlocking in 2000, Norfolk Southern and the Indiana Harbor Belt Railroad were able to dramatically improve NS train operations through Hammond. Completion of the Hohman Interlocking in 2001 continued the marked improvement in movement of NS trains through Hammond. These trains also are now able to travel at higher speeds, further reducing delays. NS continues to work with Hammond and nearby cities, the "Four Cities Consortium," to address any blocked crossing issues that occur, although now these are generally concerned with a specific train, rather than the day-to-day problems that formerly existed in the area.

2. Eloy Fire District, AZ

The Union Pacific Sunset Route runs through the middle of Eloy, where there are three at-grade crossings, all of which may be blocked at the same time. The Eloy Fire District also includes Toltec, which has a single crossing. This crossing may be blocked for up to 20 minutes by stopped trains.

The Sunset Route is a single line railroad with sidings. Currently, due to growth in intermodal traffic originating at the ports of Los Angeles and Long Beach, the line is very congested. While UP is in the process of double tracking the line, it may be several years before this portion of the line is double tracked. The delays at Eloy may be due to trains stopped at sidings waiting for oncoming trains to pass. Double tracking should reduce the delay times, although a grade separation would be preferred solution. In New Mexico, through which the Sunset Route also passes, most of the railroad route has been double tracked. As a result, discussions with the railroad indicate few problems on the double tracked section in New Mexico. As the Union Pacific continues to upgrade its infrastructure, especially that of the former Southern Pacific, the length of time crossings are blocked on the Sunset Route are likely to decline, despite increased traffic on the line.

Appendix 2

FEDERAL RAILROAD ADMINISTRATION
Regional Managers for Highway-Rail Crossing Safety
and Trespass Prevention Programs
(Updated—August 22, 2006)

Region	Manager / Address	Phone
Region I CT NJ ME NY MA RI NH VT	Mr. Randall L. Dickinson Federal Railroad Administration P.O. Box 2144 Ballston Spa, New York 12020	(O) (518) 899-5372 (F) (518) 899-5372
Region II DE PA MD VA OH WV	Mr. Donald P. Thomas Federal Railroad Administration Baldwin Tower, Suite 660 1510 Chester Pike Crum Lynne, Pennsylvania 19022	(O) (610) 521-8252 (F) (610) 521-8225
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City of Riverside, August 12, 2008

CR-1. Commenter incorrectly states that the Draft EIS/EIR does not include data and calculations for rail trips.

The rail data are based on the TEUs projected terminal throughput and the percentage of total throughput that would be transported via rail. The TEU-per-acre estimates are based on the approximate size of the container yard projected for each year noted (2010, 2015, 2020, and 2030). Rail cars are combined into trains with an assumed length of 25 rail cars. Details and assumptions are provided in Draft EIS/EIR Table 1.6-1 and Appendix B (Table 2-1). The worksheets contained as Appendix J of Appendix B provide the calculations, but the assumptions are best explained in Draft EIS/EIR Table 1.6-1. This table outlines the calculations for determining the amount of cargo, and the resulting train and truck traffic, including acreage provided for on-dock rail. Also, this table is used as the reference for the impact calculations.

Please see responses to comments SCAQMD-7, SCAQMD-40, RCTC-2, RCTC-3, RCTC-4, RCTC-9, CR-2, CR-3, CR-5, CR-8, CR-9, CR-11, and CC-3.

CR-2. Commenter notes that the traffic study incorrectly states that rail trips are expected to increase 94 percent; according to the listed trip numbers (138 trips in 2005 and 2,098 trips in 2025), rail trips will increase 1,520 percent. The Draft EIS/EIR does not explain or verify rail trip data.

The reference to the 94 percent increase will be deleted, but the data and results remain the same. Rail data are based on the projected terminal TEU throughput and the percentage of total throughput that would be transported via rail. Please see assumptions that are included in Draft EIS/EIR Talbe 1.6-1and Appendix B (Table 2-1).

Please also see response to comment CR-1, which explains that Draft EIS/EIR (Table 1.6-1) and Appendix B (Table 2-1) offer a detailed summary of the rail data and corresponding assumptions.

CR-3. Commenter states that the Draft EIS/EIR does not define "on-dock" rail facilities and how it differs from other types of rail facilities mentioned.

Section 1.6.2 of the Draft EIS/EIR highlights the difference between on-dock and near-dock rail facilities: "A near-dock intermodal yard is one that is located in or near the Port but outside any of the container terminals." An "on-dock" rail facility, as the name connotes, is located at the container terminal. An "off-dock" rail facility is located farther inland, such as at Carson or downtown Los Angeles.

CR-4. Commenter states that the Draft EIS/EIR does not state whether rail trips are one-way or round-trip, and that if they are round-trip, then the rail impacts are actually double the reported values. The listed rail trip figuresin the Draft EIS/EIR are for one-way rail trips.

CR-5. Commenter states that the Draft EIS/EIR must perform a cumulative rail analysis that includes rail traffic from the China Shipping Terminal Project at the POLA.

The cumulative projects list in Table 2.1-1 of the Draft EIS/EIR already includes the China Shipping Terminal Project, also known as the Berths 97-109 Container Terminal Project. As stated in the Draft EIS/EIR Section 3,5, the travel demand model used in this analysis is based on the SCAG Regional Travel Demand Forecasting Model. The model was adjusted to include additional projects in and near the Ports, including the Berths 97-109 Container Terminal Project. Table 2.1-1 in the Draft EIS/EIR lists all of the projects included in the cumulative analysis (Berths 97-109 is project #14). The China Shipping project is projected to add three trains per day.

A quantitative cumulative analysis was undertaken to confirm that there would be no cumulative impacts using the field survey prepared by POLA in connection with its China Shipping analysis and applying the City of Riverside's long-term train counts of 24-hour periods, which are discussed in response to comment RCTC-2.[8] The cumulative impacts would result from additional trains added from the TraPac, China Shipping, and Middle Harbor projects. The first two projects did not include specific estimates of number of trains, but provided detailed estimates of TEUs. For TraPac, the estimated additional rail freight is 2304 TEUs per day, which translates to four additional trains per day. For China Shipping, the estimated additional rail freight is 128,741 TEUs per month, with 35 percent expected to be on-dock rail. Those projections translate to three additional trains per day. Therefore, the cumulative impact is based on 12 trains/day (four from TraPac, three from China Shipping, and five from Middle Harbor). For most hours of the day, there would only be one additional train, but even at four additional trains in the peak hour, the average delay would be 24 seconds per vehicle.

Refer to response to comment RCTC-2 for additional information.

CR-6. Commenter incorrectly states that Section 3.6 of the Draft EIS/EIR admits that increased rail traffic will cause adverse traffic impacts, particularly at "at-grade crossings," and does not explain why grade separations are infeasible mitigations for increased rail traffic at at-grade intersections.

Commenter is mistaken in two ways: First, Section 3.6 concerns vessel transportation, not ground transportation, which is found in Section 3.5. Second, and more importantly, Section 3.5.2.3 concludes that the Project would NOT have a significant effect on rail services or vehicular delays at the at-grade crossings, either in the Port vicinity or in the Alameda Corridor because the only two local grade crossings have planned improvements and will be eliminated in the near future.

For at-grade crossings in Riverside County, the response to comment RCTC-2 and RCTC-4 provide a complete analysis of train impacts. The overall finding is that there are delay impacts from trains, but these impacts are approximately five to six seconds of delay/vehicle per train. Since this is below the threshold of significance (55 seconds of delay/vehicle), the impacts are not significant and no mitigation is required.

Additional grade separations are neither feasible nor warranted as a Project mitigation measure. The minimal traffic delays at the at-grade crossings generated by the Project would not warrant grade separations because the costs are too high for the benefit received.

Although the Project impacts to the Riverside County at-grade crossings are not significant, the response to comment RCTC-2 provides more information about the Port's support of the Proposition 1B Trade Corridor Improvements Fund (TCIF) for grade separations. The County and City of Riverside are receiving more than $150 million of TCIF funding for grade separation projects. This regional approach is supported by SCAG and all impacted counties as the best means for dealing with regional goods movement activities.

Please also see the response to comments RCTC-2, RCTC-3, RCTC-9, CR-5, CR-8, CR-11, CR-12, and CC-3 responses.

CR-7. Commenter notes that the Port must analyze the effects of increased rail traffic from the Project, and that the Port does not need to have control of the rails to know the amounts and destination of rail freight.

8 The City of Riverside provided the POLA with copies of long-term train counts of 24-hour periods in connection with POLA's consideration of Phases II and III of the Berth 97-109 (China Shipping) Container Terminal Improvements Project. POLB obtained those Riverside counts from POLA in connection with the consideration of the proposed Project, and these counts are available by contacting POLB staff.

The Draft EIS/EIR has estimated the baseline and with-Project number of trains. The Project will generate 5.37 additional trains per day more than the 2005 CEQA Baseline. Of these, 75 percent (four trains) will likely travel east, with one traveling on the UP line through San Bernardino and the other three traveling through Riverside. This increase will result in a five to six second vehicle delay in Riverside, which is less than significant. Additional details are included in response to comment RCTC-2. The overall finding is that the delay impacts from Project-generated trains are not significant.

Please also see responses to comments SCAQMD-7, RCTC-2, RCTC-3, RCTC-4, RCTC-9, CR-8, CR-9, CR-11, and CR-12.

CR-8. Commenter states that rail traffic from the Ports especially affects the City of Riverside because 75 percent of the containers from the Ports pass through the city, and erroneously concludes that the increased rail traffic from the Project (three more trains a day) will affect the City of Riverside even more.

First, Commenter incorrectly states that 75 percent of the containers from the Ports pass through the city by rail. This is impossible because only 40 to 45 percent of all containers travel by rail.

Commenter's suggestion that an increase in the City's rail traffic of three trains a day from the Project would disproportionately burden the residents of the City does not distinguish between existing conditions in the City and the impacts of this Project. The purpose of the Draft EIS/EIR is to identify and evaluate the environmental impacts that could potentially be caused by the Project, both individually and cumulatively. CEQA does not require that the document mitigate existing baseline conditions. These existing conditions, which are the result of regional development, are being addressed through those regional programs mentioned in response to comment RCTC-2.

The supplemental information provided by the City in its comment letter, particularly the 2006 Federal Railroad Administration (FRA) report entitled *Impact of Blocked Highway/Rail Grade Crossings on Emergency Response Services*, confirms that many of the impacts concerning the city are the result of regional development. The FRA report acknowledges (in Section IV.A) that in many parts of the country, communities grew up around the railroad, which means the railroad often runs right through the middle of town. The report further acknowledges that, as the towns spread out into the suburbs, development leads to new roads and demands for additional grade crossings if there is no nearby grade-separated highway. Investigation by the Port confirms that circumstances in the City of Riverside conform to this typical pattern. Aerial photographs show that the railroad rights-of-way extend through the City of Riverside, with development around the rights-of-way and numerous grade crossings. Areas along the railroad rights-of-way and in the areas surrounding the railroad rights-of-way have been developed with industrial, commercial, and residential uses, and various roadway infrastructure features have been developed.

SCAG documents show that the City of Riverside, Riverside County, and the Inland Empire have been the fastest growing areas in the state. The EIRs for Riverside General Plans, including the City of Riverside's General Plan, show that land use development in the City of Riverside and the nearby jurisdictions has resulted in numerous environmental impacts, such as traffic congestion on local roadways, freeway congestion, air emissions, and noise. As discussed in the Draft EIS/EIR, roadway congestion, in combination with passing trains, contributes to at-grade rail crossing delay impacts.

However, the assertion by the City that Project-related rail traffic would cause significant environmental impacts in the City of Riverside is inconsistent with the conclusions of the Final EIR for the City's General Plan (City of Riverside 2007). In that EIR, the City acknowledged that traffic delays at the at-grade rail crossings would occur under the Plan. However, the City did not identify those delays as potentially significant environmental impacts. In a letter dated September 7, 2007, the Friends of Riverside Hills commented on the Draft EIR, urging that the EIR consider impacts of the City's growth upon the at-grade crossings and include a study of the present and projected delays at the City's grade crossings. The City responded to the Friends of Riverside Hills, stating the following (City of Riverside 2007):

> In 2003, the City completed the Railroad Grade Separation Report that will help the City prioritize the grade separation projects. The City has identified a total of 28 grade separation projects, listed below. Of the 28 grade separation projects, one project is fully funded, and four are partially funded;
>
> The report will help the City prioritize future grade separations in a comprehensive manner, similar to but on a smaller scale than the Alameda Corridor project;
>
> [T]he General Plan includes Policy CCM-12.3 which calls for the City to "Aggressively pursue grade-separated rail crossings to alleviate traffic congestion and associated air quality and noise impacts."
>
> Thus, because the City has already studied the impacts of railroad crossings in its 2003 Railroad Grade Separation Report, which was specifically referenced in the Draft PEIR, and has already identified a priority list of grade separation projects, no further analysis is required in the Draft EIR.

Although the City's response acknowledged the role of "expected growth" of the City in contributing to at-grade rail crossing delays, the City did not revise its EIR to provide the requested detailed traffic impact delay analysis at the at-grade crossings. Instead, the City in reliance on the above-quoted statements, declined to make any change to its conclusion that at-grade rail crossings in the City would not be significantly impacted or require mitigation.

Data are available to assess the impact of at-grade rail crossing delays, including the 24-hour counts from the City of Riverside Train Blocking Delay Study and POLA's rail analysis. An analysis of the data finds that the Project will not result in a significant impact by itself or cumulatively.

Please see response to comments SCAQMD-7, RCTC-2, RCTC-3, RCTC-4, RCTC-9, CR-5, CR-11, CR-12, and CC-3.

CR-9. Commenter states the Draft EIS/EIR incorrectly claims that remaining rail capacity exists. However, the statement in the Draft EIS/EIR is correct. Capacity and operations are different concepts. Scheduling delays can occur with as few as two trains, if they both are needed on the track at the same time. While increasing the number of trains will increase the potential for scheduling conflicts, there is still available capacity (i.e., more trains can be added based on a volume to capacity ratio basis). The Project trips do not have a set departure time, unlike passenger rail trips. Since the Project rail trip departure times are flexible, the Project impact on scheduling is anticipated to be less than significant.

If the existing rail corridors continue to be the primary routes for freight traffic for all operations of the Ports, there could be insufficient rail capacity to accommodate all projected cargo throughput. However, for this Project analysis, a reasonable balance between truck and train traffic was considered, meaning that rail capacity on the Class I Railroads was considered. According to the MCGMAP (refer to RCTC-2 response for a detailed explanation), the railroad capacity in 2025 is 174 daily trains. Existing daily trains range from 110 to 140. Therefore, the addition of three daily trains will not exceed the mainline capacity.

CR-10. Thank you for your comment. Please see responses to comments RCTC-2, RCTC-3, and RCTC-7.

CR-11. Commenter states that Riverside residents wait an average of three hours per day per crossing for trains to pass. The City of Riverside did not provide any source for these statistics, but the comment is clearly overstated. As written, the implication is that a typical Riverside resident spends three to six hours per day waiting for trains. Rather, it is assumed that the City meant "the average total delay at crossings in the City of Riverside is three to six vehicle-hours per crossing." Data provided by RCTC in its comment letter (Technical Review of Draft EIS/EIR for Middle Harbor Redevelopment Project prepared by Kimley-Horn and Associates, Inc.) suggest that the average delay per crossing is 13.2 to 43.9 vehicle-hours of delay per day, per crossing in the City of Riverside. Even assuming these higher values are accurate, the point of the City's comment is not clear. As noted in response to comments CR-8 and RCTC-2 through RCTC-4, total daily delay is not a significance criterion. Even if it were, the Project will add 1.9 to 12.0 daily vehicle-hours of delay to the at-grade crossings in Riverside County (per RCTC). Assuming an average of 10,000 vehicles/day at these crossings (consistent with typical values), the additional delay will be 0.7 to 4.2 seconds/vehicle. The Port's methodology (described in response to comment RCTC-4) is more comprehensive and conservative. With that methodology, the estimated delays are approximately five to six seconds/vehicle. These values are all well below the threshold value of 55 seconds/vehicle, so none of these impacts are significant.

Please see response to comment RCTC-2.

CR-12. Commenter states that train traffic has delayed fire trucks, police vehicles, and ambulances in Riverside.

Please see response to comments CR-11 and RCTC-2 through RCTC-4. While existing trains do result in delays at at-grade crossings, the Draft EIS/EIR considers only whether impacts from the proposed Project will be significant. The City has 14 fire stations on either side of the main rail corridors strategically placed throughout the City. Pursuant to a discussion with City of Riverside Fire Department on February 26, 2009, the City has an established emergency response goal of five minutes. The City also has a protocol for dealing with rail traffic. If an emergency vehicle experiences a delay at a rail crossing, the Captain is required to call dispatch if he anticipates the train delay to result in an overall response time of more than five minutes so that a station on the other side of the rail line can be dispatched. Therefore, Project generated trains will generate less than a significant impact to emergency response.

CR-13. Thank you for your comment. Please see responses to comments RCTC-2, RCTC-3, and RCTC-7

CR-14. Commenter asserts the Port can mitigate the rail burdens in Riverside by offering fair-share contributions to grade separation projects. Many of the problems described by the commenter are being addressed by a partnership of regional and state organizations. Various southern California counties (including the County of Riverside) comprise the Southern California National Freight Gateway, referred to as the Trade Corridor Improvement Fund (TCIF). During the past two years, the following southern California agencies have worked closely together to develop of list of Tier I and Tier II projects to address various goods movement issues throughout all of the respective counties:

- POLA;
- Riverside County Transportation Agency (to which the City of Riverside belongs);
- POLB;
- San Bernardino Associated Governments;
- Alameda Corridor Transportation Authority;
- Orange County Transportation Authority;
- Alameda Corridor East Construction Authority;
- Los Angeles County METRO;
- Ventura County Transportation Commission;

- Southern California Rail Authority; and
- SCAG.

These agencies have submitted numerous applications to the California Transportation Commission for the TCIF funding of individual projects in each county, including grade separation projects. Furthermore, as indicated on page 20 of the FRA report that the City of Riverside provided, grade separations generally are funded by Caltrans and local communities. (FRA p. 20.) The FRA report also calls for communities to work with the railroad (in their communities) to determine the most effective methods for addressing at-grade crossing traffic congestion and to minimize costs for grade separations.

Commenter attempts to draw a nexus between Port and/or Project-related truck and rail traffic and allegedly significant environmental impacts in Riverside County, including significant at-grade rail crossing delay impacts. However, as noted in responses to comments CR-8 and CR-11, the at-grade rail crossing delays are well below the significance threshold.

Please see response to comments RCTC-2 and CBD-65.

Office of the
City Attorney

CITY OF
RIVERSIDE

April 10, 2009

Board of Harbor Commissioners
Port of Long Beach
925 S. Harbor Plaza
Long Beach, CA 90802

Subject: Reply to Responses to City of Riverside's Comments on Middle Harbor Redevelopment Project DEIR; Our File No: 08-0567.2

Dear Commissioners:

Thank you for your responses to our August 12, 2008, comments on the Middle Harbor Redevelopment Project DEIR. We received your responses on Friday, April 3, only nine days before the April 13, meeting where the Project is scheduled for hearing. As a result, Riverside had limited time to review and reply to the responses, and was unable to provide these replies to you any sooner.

These replies follow the order of the original comments and responses to those comments. Generally, Riverside observes that the responses to comments include little if any further analysis, gathered no further data, and instead blame the City of Riverside for being in the way of the Port's freight. Many of the responses also refer to responses to other agencies' comments, particularly those from the Riverside County Transportation Commission ("RCTC"). Since the responses to RCTC's comments are pervasively cited in the Port's responses to Riverside's comments, we will address those first.

<u>Responses to RCTC's Comments</u>:

Response RCTC-2 refers to "commonly accepted rail impact thresholds" but does not use any. The HCM methodology used in the FEIR is used for traffic intersection signals, not trains. The correct methodology is the Federal Railroad Administration (FRA) model. As explained by Riverside Traffic Engineer Mr. Tom Boyd, the HCM methodology is only an acceptable methodology to compare relative delay at railroad crossings. It is not an acceptable methodology to use when actual delay or the true impact of a railroad crossing on a transportation corridor is being determined. The methodology for analyzing at grade railroad crossings differs significantly from HCM signalized intersection analysis with the most significant difference being is that the railroad crossing is controlled by the train, which has priority and right-of-way. The train's time of approach, length, and speed cannot be controlled by the highway corridor's signal system. The correct methodology to calculate train delays is published by the FRA. This is also the accepted methodology to determine the impacts of trains on a transportation corridor or coordinated signal system. Many of the City's rail crossings are on arterial highways which operate as a coordinated system. The FRA methodology shows a truer picture of the total impact.

The "true delay" caused by a train crossing a highway is the "time in queue" (which is the time a vehicle is held in queue behind a closed railroad gate) plus the return of the blocked vehicles to the regular traffic flow. The "true delay" results in poor progression of the vehicles within the transportation corridor. This in turn lowers the corridor's efficiency and level of service (travel time) within the corridor. In addition, as the number of trains crossing a highway increases, the time for the traffic signal system to return to a coordinated state decreases which increase delay and eventually reaching a point where coordination is lost further increasing delays. The analysis for grade crossings should be completed utilizing the "true delay" method.

The delays projected in the EIR are further understated since the EIR's calculations are based on only four hours of train observations which equate to approximately one train per hour. The City's actual 24-hour train counts, along with the Union Pacific and BNSF train counts are substantially higher at almost two trains per hour on the Union Pacific tracks to over three trains per hour on the BNSF tracks.

The EIR gives 5.7 seconds/vehicle as the average delay per vehicle and 6.2 seconds/vehicle for average peak hour crossing delay using the incorrect HCM method. Based on the assumptions in the EIR, the AM/PM peak hour delay would equate to approximately 4.13 vehicle hours delay/day at a crossing with and ADT of 25,000. However, using the Magnolia/UP crossing as an average crossing (ADT approximately 24,000) and the accepted FRA methodology a true delay value of 25.3 vehicle hours/day is projected. Since the EIR is based on averages it is difficult to make a direct comparison between delay calculations; however, it is easy to see that the delay calculations differ by several orders of magnitude which indicate that EIR calculations are not representative of actual delays.

In summary, the methodology for analyzing "at grade railroad crossings" differs significantly from signalized intersection analysis. The train's time of approach, its length, and its approach speed cannot be predicted or controlled by the corridor's signal system. Because the railroad crossing is controlled solely by the approaching train, which has priority and right-of-way, the corridor's signal system cannot adjust and prepare for when the train may approach (like it could for a crossing arterial street at a signal). It also takes several signal cycles for a corridor to recover after a train crossing, inducing further delay on the corridor long after the train has passed by. By following the correct methodology, this yields a more accurate representation of the significance of this project impact. The EIR delays calculations should be redone using the correct methodology

Response RCTC-2's facts are additionally incorrect regarding the location and use of rail lines. This response assumes that 25% of the eastbound trains will use the UP line through San Bernardino, instead of traveling through Riverside. UP operates two east/west lines, with the westbound trains using the San Bernardino line, and the eastbound trains travelling through Riverside. The Port's facts are plainly incorrect.

This response also relies upon responses to comments prepared by the Port of Los Angeles for its China Sipping Terminal Project. POLA commissioned a short-term study to refute Riverside's comments on the China Shipping Terminal DEIR, but that study relied upon 4-hour train counts. Those 4-hour-long observation periods proved to be statistically valueless as they under-estimated actual traffic level by up to two thirds. Riverside's long-term train counts proved that 24-hour rail traffic was up to three times heavier than POLA's study predicted. POLA's responses also include an incorrect grade separation cost estimate of $150 million. However, as explained to POLA, grade separations *actually* cost $24 million (a recently-completed project in Riverside, not an estimate) to an estimated average of $30 million. These are real, budgeted costs, showing POLA exaggerated the costs five-fold.

Response RCTC-2 also states that "five City of Riverside at-grade crossings have been fully funded," That is not true. Some funding has been identified, and accounts have been set up and dedicated, but funding is not complete.

Response RCTC-4 claims that a rail car is 300 feet long; relies upon the defective POLA short-term study data; and uses the HCM automobile/signal analysis to estimate train impacts, which is incorrect.

Response RCTC-7's passing mention to mitigation is an error, as that mitigation measure applies to trucks calling at the Port, not to cars idling in Riverside waiting for trains from the Port to pass.

Response RCTC-9 claims that the Project will only add 2.16 trains per day. That calculation confuses the "no-project" alternative future estimate as the baseline. The Port uses the wrong baseline in violation of CEQA.

<u>Responses to Riverside Comments</u>:

Response CR-1 added no further data or calculations. Riverside's first comment complained of the insufficiency of the data and calculations supporting the rail trip estimates.

We restate our concern that the rail trip estimates are not supported by data or calculations. Simply estimating the number of rail trips, when it is such an important impact source, is not a good-faith effort to analyze this matter. As a result the rail trip estimate does not constitute "substantial evidence" for the purposes of CEQA.

This is demonstrated easily. One example is the DEIR's estimate (repeated in the responses to comments) of trains, based on lengths of 25 cars. The DEIR did not explain that when the Port uses the term "rail car" it was actually using an obscure railroad term of art, which in ordinary English means "five rail cars." That bit of arcana is first revealed, however inadvertently, in a response to one of the Riverside County Transportation Commission's comments, RCTC-4: "A car in rail terms consists of five articulated bare tables and averages 300 feet in length." Riverside maintains that the public cannot be expected to know such technicalities, unless those terms (and the associated studies and data) are disclosed. In order to be meaningful, that disclosure must be made earlier than responses to comments revealed at the last minute. CEQA requires such a disclosure to have been made in the Draft EIR, along with the supporting data and calculations.

A second example is the proportion of traffic to be transported by rail. As you are no doubt aware, the Port is actively seeking to increase the proportion of cargo transported by rail, and has already approved two such measures. As stated on the Port's website:

> A package of incentives to increase rail-borne cargo through the Port of Long Beach was voted preliminary approval on Monday, February 23, by the Long Beach Board of Harbor Commissioners. The incentives are designed to retain or increase local business and jobs in the face of a decline in global trade.
>
> * * *
>
> The Port is proposing two means of giving shippers incentives to send cargo through Long Beach that is carried by train. Rail-hauled cargo makes up about half of the containers that pass through the Port. This train cargo originates in or is destined for sites outside of California.

(http://www.polb.com/news/displaynews.asp?NewsID=521&TargetID=28.) The Port must account for such efforts in the calculations and data if it seeks to make a good-faith effort.

A third example is also provided in the above excerpt: "Rail-hauled cargo makes up about half of the containers that pass through the Port." The 'best explanation of the assumptions' according to response CR-1 is Table 1.6-1 in the DEIR and FEIR, neither of which *explains* anything. Instead, the table sets forth a series of conclusory numerals but no methodology. Working backwards from the conclusions, presuming 4 TEUs per rail car, 125 rail cars per train (or 20 TEUs and 25 "rail cars"), and 2,098 trains per year, divided by the annual TEU throughput, results in a different value – 31% by train. Compare those two unexplained and divergent values with a third value of 24%: the DEIR presumed that 24% of the cargo throughput by rail (DEIR p. 1-42). Which is it, 50%, 31%, or 24%? How can anybody be sure? How did you arrive at the figure? What is it based on? This moving target must be quantified, and explained. It cannot support an environmental finding. It is internally inconsistent and not explained or supported. It is not, and cannot support, substantial evidence. If only for this reason, the EIR must be recirculated.

Response CR-4 states that the rail trips are one-way trips, and not round trips. Riverside agrees that one-way trips are the appropriate analytical unit, but please be advised that the Port of Los Angeles does not. POLA's China Shipping Terminal FEIR analyzed its rail impacts using round trips.

Response CR-5 only restates the DEIR's conclusion, and does not supply the needed analysis. The cumulative impacts analysis, as noted by Riverside and RCTC, remains. A cursory glance at the issue is not enough. Furthermore, a cumulative rail impacts analysis using POLA data will under-predict due to the use of rail round trips (explained above) and POLA's defective rail count data. POLA commissioned a short-term study to refute Riverside's comments on the China Shipping Terminal DEIR, but the study relied upon four-hour train counts. Those four-hour-long observation periods proved to be statistically valueless as they under-estimated actual traffic level by up to two thirds. Riverside's long-term train counts proved that 24-hour rail traffic was up to three times heavier than POLA's study predicted. Relying on POLA's doubly-defective rail data makes this FEIR's analysis inherently and fatally defective. It is not, and cannot support, substantial evidence.

Response CR-6 is incorrect, relying on defective analysis from both POLB and POLA. This response relies upon POLA's incorrect grade separation cost estimate of at least $102 million. As explained to POLA in Riverside's replies, and comments made at the China Shipping Terminal hearing, grade separations *actually* cost $24 million (a recently-completed project in Riverside, not an estimate) to an estimated average of $30 million. These are real, budgeted costs, which prove POLA's hyper-inflated specter of $150 million to be a five-fold exaggeration. Because POLB relied upon wildly incorrect mitigation costs, the feasibility analysis is incorrect and cannot support a finding of infeasibility. Additionally, Riverside is proposing proportionate-share mitigation, and not demanding that POLB pay for all of one, or even more, grade separations. The exponential error in the EIR analysis renders it absolutely defective.

Further defective analysis results from the use of the wrong analytical tool. RCTC-2, cited to support CR-6, does not in fact use the "commonly accepted rail impact threshold." Instead, it uses the Highway Capacity Model, which is not used for rail crossing analysis. The

HCM methodology is only an acceptable methodology to compare relative delay at railroad crossings. It is not an acceptable methodology to use when actual delay or the true impact of a railroad crossing on a transportation corridor is being determined. The methodology for analyzing at grade railroad crossings differs significantly from HCM signalized intersection analysis with the most significant difference being is that the railroad crossing is controlled by the train, which has priority and right-of-way. The train's time of approach, length, and speed cannot be controlled by the highway corridor's signal system.

The correct methodology to calculate train delays is published by the Federal Railroad Administration (FRA). This is also the accepted methodology to determine the impacts of trains on a transportation corridor or coordinated signal system. Many of the City's rail crossings are on arterial highways which operate as a coordinated system. The FRA methodology shows a truer picture of the total impact.

The "true delay" caused by a train crossing a highway is the "time in queue" (which is the time a vehicle is held in queue behind a closed railroad gate) plus the return of the blocked vehicles to the regular traffic flow. The "true delay" results in poor progression of the vehicles within the transportation corridor. This in turn lowers the corridor's efficiency and level of service (travel time) within the corridor. In addition as the number of trains crossing a highway increases, the time for the traffic signal system to return to a coordinated state decreases which increase delay and eventually reaching a point where coordination is lost further increasing delays. The analysis for at grade crossings should be completed utilizing the "true delay" method.

The delays projected in the EIR are further understated since the EIR's calculations are based on only four hours of train observations which equate to approximately one train per hour. The City's actual 24-hour train counts, along with the UP and BNSF train counts are substantially higher at almost two trains per hour on the UP tracks to over three trains per hour on the BNSF tracks.

The EIR gives 5.7 seconds/vehicle as the average delay per vehicle and 6.2 seconds/vehicle for average peak hour crossing delay using the HCM method. Based on the assumptions in the EIR, the AM/PM peak hour delay would equate to approximately 4.13 vehicle hours delay/day at a crossing with and average daily trips (ADT) of 25,000. However, using the Magnolia/UP crossing as an average crossing (ADT approximately 24,000) and the accepted FRA methodology a true delay value of 25.3 vehicle hours/day is projected. Since the EIR is based on averages it is difficult to make a direct comparison between delay calculations; however, it is easy to see that the delay calculations differ by several orders of magnitude which indicate that EIR calculations are not representative of actual delays.

The methodology for analyzing "at grade railroad crossings" differs significantly from signalized intersection analysis. The train's time of approach, its length, and it approach speed cannot be predicted or controlled by the corridor's signal system. Because the railroad crossing is controlled solely by the approaching train, which has priority and right-of-way, the corridor's signal system cannot adjust and prepare for when the train may approach (like it could for a crossing arterial street at a signal). It also takes several signal cycles for a corridor to recover after a train crossing, inducing further delay on the corridor long after the train has passed by. By following the correct methodology, this yields a more accurate representation of the significance of this project impact. The EIR delays calculations must be reanalyzed using the correct (FRA) methodology.

Response CR-7 also contains a significant factual mistake, assuming that 25% of the eastbound trains will use the UP line through San Bernardino, instead of traveling through Riverside. UP operates two east/west lines, with the westbound trains using the San Bernardino line, and *the eastbound trains travelling through Riverside*. The Port's rail impact conclusions cannot be correct if they are based on errors as fundamental as where the trains travel. Riverside's comments made clear that the UP trains travel through Riverside. Had the Port given Riverside's comments good-faith consideration, the Port would have known that. This is prima facie evidence that the EIR does not contain adequate effort to analyze and mitigate rail impacts, and is therefore in violation of CEQA.

Response CR-8 shifts the blame to Riverside for being in the Port's way, misstates Riverside's general plan, and still relies on POLA's defective analysis. These are all in violation of CEQA. As set forth in the State CEQA Guidelines, the baseline for CEQA analysis is the conditions as they exist at the time of analysis, not before a city or region experiences growth:

> 15125. Environmental Setting.
> (a) An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant....

Because Riverside's growth relative to railroads did not take place after the Port issues the notice of preparation for this Project, it does not excuse the Port from mitigation. The correct baseline is the current conditions, which include the fact that Riverside is trisected by railroads, which are at or near capacity. The Project's additional cargo burden on those existing railroads will cause significant impacts, which the Port must analyze and mitigate if feasible. Recall that Riverside suggests a *proportional* contribution to grade separations based on *this project's* impacts.

This response misrepresents Riverside's general plan and its EIR. Riverside's general plan addresses the problem of rail impacts, and looks to grade separations as mitigation. This is perfectly consistent with Riverside's comment. General plans provide guidance for the future of a planning area. The Project, which will cause rail impacts, is consistent with the general plan's prediction of rail impacts that must be addressed by grade separations. The Port's accusation that the City did not impose grade separations as mitigation in its general plan EIR evinces the Port's misconception of CEQA. The general plan itself did not increase rail traffic; therefore, it makes no sense for the Port to expect the City to mitigate rail impacts not caused by the general plan.

Response CR-9's statement that adequate rail capacity remains irreconcilably conflicts with the Port's admission, in response RCTC-2, of limited trackage and increasing demand. This conflict is further proof that the Project's environmental analysis is not based on substantial evidence, in violation of CEQA.

Response CR-10 does not address Riverside's comment that the idling vehicles at grade crossings emit tons of air pollutants, and instead refers the reader to RCTC-2, RCTC-3, and RCTC-7. Response RCTC-2 is defective and incorrect, and does not mention air quality. Response RCTC-3 addresses truck trips from the Port and does not address air quality. Response RCTC-7 does discuss air quality impacts, but is not a sufficient response to Riverside's comment. Response RCTC-7 recites that vehicles idling at grade crossings emit pollution, including PM10, for which that the Riverside area is in non-attainment. Labeling the emissions as "intermittent" and comparing them to the overall air pollution of the Project does not suffice for a good-faith analysis of localized air quality and health impacts in Riverside. The response's passing mention to a mitigation measure does not address the impacts, either, as that mitigation measure applies to trucks calling at the Port, not to cars idling in Riverside waiting for trains from the Port to pass. Riverside's comment remains unanswered.

Regarding response CR-11, the Port is correct in understanding that comment 11 refers to the average amount of time per day that a rail crossing is blocked by train activity. The crossing guard arms at rail crossings in Riverside are in the down position an average of three hours per day. The grade crossing guard arms on Iowa Street are down an average of six hours per day. As the 24-hour rail counts provided to POLA, and submitted with these replies, shows, that is no overstatement. The additional rail traffic from the Project will cut in to the already-limited time the grade crossings are passable to traffic. The Port's reliance on the Highway Capacity Model's average-delay-per-vehicle analysis is incorrect and misplaced.

Response CR-12 is incorrect and insufficient. The environmental baseline in Riverside is that the large number of trains, trisect the City routinely. As a result, access within the city is already compromised and unpredictable, leaving fewer times when trains are absent. This baseline does not excuse the Project's increase in rail traffic. Instead, the additional rail burden from the Project is a more severe impact when it is measured against the remaining rail capacity and the time when grade crossings are not already occupied (mathematically, asymptotic relationships). Also note that a five-minute response time goal does not make rail impacts to emergency services impossible, and that the response does not state whether the Fire Department is meeting that goal. Relying on Riverside's protocol to minimize the impacts from past and existing train traffic does not mitigate the impacts from *this* Project. The Port has an obligation under CEQA to mitigate the impacts of its projects; ignoring the impacts and expecting others (such as Riverside) to mitigate them is not complying with CEQA. Impacts to emergency services remain significant and Response CR-12 has not adequately responded to Riverside's comment.

Response CR-13 refers the reader to Responses RCTC-2, -3, and -7. As explained above, those responses are defective, insufficient, inadequate, and based upon no data or erroneous data.

Riverside correctly asserted in its comments that grade separations will mitigate impacts from the Project's additional trains. However, the list provided in Response CR-14 is not exclusive, and does not prevent the Port from analyzing and mitigating for its rail impacts. Riverside has an active grade separation program, with planned projects with separate accounts.

In summary, Riverside's concerns remain unabated. The environmental analysis is missing, inadequate, incorrect, and misleading. Relying upon the Port of Los Angeles's erroneous short-term study pervades the analysis with error. Using the HCM methodology is incorrect and does not estimate the impacts correctly. The Middle Harbor Redevelopment Project will admittedly add a large number of trains through Riverside; nearly 2000. That number could be even higher, but the current rail analysis prevents anybody except the Port from knowing. Riverside respectfully requests that the Port adequately analyze the rail impacts and mitigate them. We sincerely hope that you will reconsider this project, its impacts, and the mitigation, before you approve it.

Very truly yours,

Anthony L. Beaumon
Deputy City Attorney

ALB/jw

City of Riverside
Train Crossing on Jurupa Avenue
Thursday, September 30, 1999
24 Hour Delay Count

Time	Type	Direction	Delay Time Minutes/Seconds	Comments
12:50	Freight	WB	1:58	
1:07	Freight	WB	2:29	
1:22	Freight	EB	2:27	
1:47	Freight	EB	0:51	
2:36	Freight	EB	0:18	Switching
2:37	Freight	EB	0:33	Switching
3:10	Freight	EB	4:10	
3:26	Freight	EB	1:34	
3:52	Freight	WB	1:23	
4:58	Metrolink	WB	0:30	
5:18	Freight	EB	5:33	
5:27	Freight	WB	2:11	
5:59	Metrolink	WB	0:33	
6:31	Metrolink	WB	0:46	
6:46	Freight	EB	1:40	
7:06	Metrolink	WB	0:43	
7:14	Freight	WB	1:08	
7:39	Freight	EB	4:33	
8:26	Metrolink	WB	0:39	
8:41	Freight	WB	2:09	
9:27	Freight	EB	2:45	
9:44	Freight	EB	1:03	Switching
10:00	Freight	EB	0:38	Switching
10:13	Freight	EB	16:26	Switching
10:32	Freight	EB	1:54	Switching
10:42	Freight	EB	1:09	Switching
10:44	Freight	EB	0:47	Switching
10:55	Freight	EB	3:00	Switching
10:58	Freight	EB	2:18	Switching
12:06	Freight	EB	1:02	
14:33	Freight	EB	2:42	
14:42	Metrolink	EB	0:55	
15:04	Freight	WB	0:58	
15:16	Metrolink	WB	1:06	
15:34	Freight	EB	0:43	Switching
15:35	Freight	EB	0:34	Switching
15:36	Freight	EB	2:16	
15:39	Freight	EB	1:14	Switching
15:41	Freight	EB	1:01	Switching
15:51	Freight	EB	4:03	Switching

			2:00	Switching
15:58	Freight	EB	0:17	Switching
16:03	Freight	EB	0:10	Switching
16:07	Freight	EB	1:35	Switching
16:17	Freight	EB	5:13	
16:21	Freight	EB	2:23	
16:56	Freight	WB	0:41	
17:16	Metrolink	EB	2:09	
17:37	Freight	EB	0:49	
18:21	Metrolink	EB	0:45	
18:46	Metrolink	EB	0:39	
19:03	Metrolink	EB	3:38	
19:14	Freight	EB	0:49	
19:43	Metrolink	EB	1:33	
21:16	Freight	EB	2:02	
23:23	Freight	WB		
TOTAL DELAY			107:00	

City of Riverside

Train Delay Study

Train Crossing on Brockton Ave @ Dewey Ave

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
0:42:55	13:53	EB	2	4	F	
1:14:07	5:25	EB	1	0	F	
1:39:44	1:20	EB	0	2	F	
2:43:42	4:22	EB	1	2	F	
3:32:38	2:30	EB	1	1	F	
4:23:36	4:13	EB	2	1	F	
4:48:58	0:56	WB	0	0	P	
5:38:15	1:50	EB	2	1	P	
5:49:28	0:49	WB	0	3	P	
6:19:58	0:45	WB	1	0	P	
6:53:51	0:56	WB	2	4	P	
7:58:29	2:17	WB	19	12	F	
8:20:56	0:46	WB	2	5	P	
8:24:26	3:57	EB	22	23	F	
8:50:41	2:00	EB	11	9	F	
9:10:28	2:35	EB	10	12	F	
9:59:31	3:12	WB	18	20	F	
10:21:38	4:19	EB	24	29	F	
10:34:06	1:05	EB	6	9	F	
11:54:10	2:32	EB	11	21	F	
12:00:13	1:31	EB	10	8	F	
13:24:21	1:53	WB	14	10	F	
13:33:50	2:34	WB	16	19	F	
13:42:57	0:43	WB	5	7	F	
14:24:02	0:32	EB	4	4	P	
14:54:30	8:03	WB	48	45	F	
15:12:30	0:54	WB	5	2	P	
16:03:05	4:21	EB	31	22	F	
16:46:28	1:45	EB	13	14	F	
17:30:40	0:35	EB	6	8	P	
17:48:16	3:43	EB	24	35	F	
18:04:20	0:38	EB	5	6	P	
18:42:18	0:37	EB	2	2	P	
19:08:45	0:36	EB	3	2	P	
19:42:56	0:42	EB	0	3	P	
20:11:09	3:20	EB	16	15	F	
20:50:45	1:32	EB	1	5	F	
21:10:54	4:40	EB	16	14	F	
22:20:15	1:40	WB	2	1	F	
23:25:45	3:58	EB	1	2	F	

TOTAL 103

DELAYS = 40

City of Riverside

Train Delay Study

Train Crossing on Magnolia Ave @ Merrill Ave

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound *	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
0:01:20	3:09	WB	7	2	F	
0:13:45	4:11	EB	9	9	F	
1:05:35	3:55	EB	1	1	F	
1:16:45	3:20	EB	5	3	F	
3:23:50	3:55	EB	0	0	F	
4:01:19	3:26	EB	1	0	F	
4:21:35	2:35	EB	1	0	F	
4:34:08	3:02	EB	0	0	F	
4:50:45	0:55	WB	0	1	P	
5:49:12	0:48	WB	0	2	P	
6:54:50	1:03	WB	15	2	P	
6:59:15	2:49	EB	17	5	F	
7:32:19	3:27	EB	26	19	F	
8:20:46	1:15	WB	23	6	P	
8:37:56	3:12	EB	23	14	F	
8:56:46	3:24	EB	40+	32	F	
9:45:36	2:16	EB	25	23	F	
10:08:43	3:20	EB	50	42	F	
10:55:07	3:46	EB	44	36	F	
11:27:40	1:09	WB	13	21	F	
11:37:20	3:36	EB	50	42	F	
11:50:08	3:03	EB	35	34	F	
12:07:17	2:33	EB	10/50	45	F	
13:02:30	4:00	EB	15/75+	49	F	
13:28:08	1:02	EB	9/35	17	F	
14:21:17	12:58	EB	15/100+	100+	F	
14:36:52	0:56	EB	15/20	38	P	
15:12:07	0:50	WB	2/15	20	P	
15:39:59	1:00	WB	8/15	15	F	
16:17:10	1:53	EB	8/32	25	F	
16:59:38	3:02	EB	9/28	36	F	
17:06:54	1:45	EB	5/24	22		MaintenancePU
17:25:40	0:35	EB	2/2	11	P	
18:06:48	0:45	EB	2/6	18	P	
19:07:39	0:50	EB	10	15	P	
19:45:17	0:37	EB	7	3	P	
19:58:52	2:23	EB	2	5	F	
20:04:47	3:28	EB	5/30	28	F	
20:12:25	42:58	EB	6/24	24	F	
21:40:00	2:58	EB	0/19	21	F	
22:29:00	3:20	EB	18	16	F	
23:05:16	1:10	EB	3/12	16	F	
23:17:30	2:22	EB	2	1	F	

TOTAL 151

Note: Some queue lengths are reported as two numbers divided by a slash.

* First number is the northbound queue on Magnolia between the tracks and Merrill.

The second number is the queue length south of Merrill. The signal remains red while gates are down.

DELAYS = 43

City of Riverside

Train Delay Study

Train Crossing on Palm Avenue @ Dewey Avenue

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound *	Vehicles in Queue Southbound **	F=Freight P=Passenger	Comments
0:13:25	6:35	EB	1	3	F	
1:18:15	2:33	EB	0	0	F	
1:49:22	3:16	EB	0	0	F	
3:37:40	2:38	WB	0	1	F	
4:04:07	4:33	EB	0	1	F	
4:14:34	3:50	EB	2	1	F	
4:31:50	3:02	EB	0	3	F	
4:59:40	0:53	WB	1	0	P	
5:47:40	1:28	EB	1	1	F	
5:55:58	0:58	WB	0	0	P	
6:19:19	0:55	WB	2	1	P	
6:54:49	0:48	WB	1	2	P	
7:02:36	1:13	EB	2	11	F	
7:08:28	2:26	EB	9	6	F	
7:35:21	1:40	EB	7/3	5	F	
8:21:03	0:51	WB	5/1	2/2	P	
8:23:36	2:52	EB	10	5/1	F	
10:22:33	13:01	EB	10	5/1	F	
10:45:33	4:17	EB	12	19	F	
10:55:19	1:22	EB	5/1	9/1	F	
11:24:26	4:10	EB	12/1	16	F	
11:49:02	2:29	EB	15/1	10/2	F	
12:57:03	2:06	EB	5	8	F	
13:24:38	1:00	WB	1/1	3	F	
14:27:45	2:48	WB	6/1	11	F	
14:37:32	0:42	EB	5	2	P	
15:12:56	0:59	WB	2	0	P	
15:42:16	2:57	EB	26/2	21	F	
16:57:08	2:48	W	14	20	F	
17:34:26	0:07	W	8	2	P	
18:02:30	0:10	W	8	6	P	
18:18:48	1:03	W	8	4	F	
18:37:50	0:05	W	2	1	P	
19:11:00	0:27	EB	1	0	P	
19:45:06	0:36	EB	1	1	P	
20:12:53	3:27	EB	13	11/1	F	
20:52:25	1:40	EB	7	9/1	F	
21:12:24	4:47	EB	20/4	18/1	F	
23:07:00	0:40					Gate down/No train
23:23:00	1:42	WB	2/2	2	F	
23:26:30	4:54	EB	2	6	F	

TOTAL 97

Note: Some queue lengths are reported as two numbers divided by a slash.

* First number is the northbound queue on Palm / Second number is queue on side street.

**First number is the southbound queue on Palm / Second number is queue on side street.

DELAYS = 41

City of Riverside
Train Delay Study
Train Crossing on Riverside Ave @ Elizabeth Street

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
0:04:02	1:16	EB	0	0	F	
0:49:07	2:14	EB	0	2	F	
1:10:02	3:42	EB	0	0	F	
1:32:00	4:26	EB	1	0	F	
3:02:55	2:53	EB	0	0	F	
3:13:58	2:51	EB	0	0	F	
3:48:42	3:04	EB	0	0	F	
4:27:03	2:17	WB	1	0	F	
4:50:52	0:47	WB	0	1	P	
5:39:32	5:52	EB	0	4	F	
5:50:19	0:41	WB	2	2	P	
6:20:21	0:55	WB	0	1	P	
6:54:32	0:56	WB	2	1	P	
7:28:49	2:41	EB	17	14	F	
7:42:29	5:03	EB	19	18	F	
8:21:48	0:44	WB	3	4	P	
8:26:46	6:40	EB	20	30+	F	
8:47:12	3:49	EB	14	17	F	
9:13:14	3:01	EB	9	16	F	
10:06:50	4:04	EB	14	32	F	
10:44:29	3:02	WB	9	21	F	
11:00:31	1:02	EB	3	5	P	
11:01:38	2:22	WB	20	23	F	
11:06:22	0:29	WB	0	1		*Maintenance Veh.*
12:40:53	2:54	EB	16	14	F	
13:48:48	1:18	EB	9	7	F	
14:29:26	1:09	EB	7	5	P	
14:56:47	1:49	WB	20	18	F	
15:11:09	0:44	WB	10	7	P	
15:22:29	4:04	EB	33	40+	F	
15:45:01	1:08	WB	10	13	F	
15:52:18	2:46	EB	23	21	F	
16:06:17	4:05	EB	18	25+	F	
16:41:39	0:40	EB	10	4		*Maintenance Veh.*
16:59:38	3:32	EB	25	27	F	
17:36:04	0:57	EB	11	7	P	
18:04:12	0:51	WB	8	9	P	
18:20:48	1:34	EB	10	16	F	
18:39:26	1:00	EB	8	6	P	
19:10:42	0:54	EB	3	7	P	
19:31:41	3:09	EB	15	10	F	
19:45:21	0:46	EB	11	2	P	
21:09:40	3:41	EB	13	7	F	
22:34:57	1:25	EB	1	1	F	
23:14:15	1:38	WB	4	2	F	
23:21:15	4:32	EB	5	2	F	

TOTAL 109

DELAY = 46

City of Riverside

Train Delay Study

Train Crossing on Streeter Ave @ Dewey Ave

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound **	*Vehicles in Queue Southbound ***	*F=Freight P=Passenger*	*Comments*
0:07:24	6:25	EB	3	1	F	
0:24:15	1:54	EB	4	1	F	
1:46:44	3:09	EB	3	0	F	
3:09:47	65:39	EB	1	2	F	*Train stopped ****
3:38:56	2:36	WB	0	0	F	
4:04:34	2:00	EB	0	0	F	
4:29:40	2:52	EB	0	3	F	
4:50:15	0:32	WB	2	0	P	
5:45:32	1:08	EB	4	1	F	
5:56:05	0:47	WB	0	0	P	
6:19:25	0:42	WB	5	3	P	
6:55:45	0:45	WB	2	4	P	
7:00:00	2:15	EB	7	7	F	
8:19:40	0:53	WB	4	0	P	
8:33:19	1:59	EB	6/1	8	F	
8:51:20	3:13	EB	16/1	20	F	
9:22:33	0:58	EB	9	5	F	
10:04:19	2:33	EB	9/1	8/1	F	
10:49:45	3:17	EB	11/2	17/1	F	
11:27:29	1:15	WB	5	3	F	
11:31:42	2:59	EB	17	13/2	F	
11:45:27	2:13	EB	12	10	F	
14:30:32	0:45	EB	9	2	P	
14:42:34	2:13	EB	19/5	21/1	F	
15:01:51	2:30	WB	20/2	15/1	F	
15:12:50	0:49	WB	9	9/2	P	
15:35:25	3:14	EB	18	13	F	
15:48:04	12:52	EB	40/3	71/10	F	
16:50:39	2:16	EB	7	14	F	
17:31:23	0:48	EB	13	15/1	P	
18:04:04	0:44	EB	11	3	P	
18:38:29	0:46	EB	11	3	P	
19:11:03	0:41	EB	4	2	P	
19:45:10	1:03	EB	3	1	P	
20:25:25	2:47	WB	18	19	F	
20:50:05	2:31	EB	16	13/1	F	
22:55:17	32:28	EB/WB	6	6	F/F	*EB Stopped*

TOTAL 171

Note: Some queue lengths are reported as two numbers divided by a slash.

* First number is the northbound queue on Streeter / Second number is queue on side street.

**First number is the southbound queue on Streeter / Second number is queue on side street.

*** Train remained stopped while the next two trains passed.

DELAYS = 37

City of Riverside

Train Delay Study

Train Crossing on Chicago Avenue @ Marlborough Avenue

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound *	Vehicles in Queue Southbound **	F=Freight P=Passenger	Comments
0:15:30	2:23	EB	1	1	F	
0:36:04	1:31	WB	0	1	F	
1:07:09	2:06	EB	2	1	F	
1:15:55	1:13	WB	0	0	F	
1:25:30	1:10	WB	0	0	F	
1:27:40	5:10	EB	3	2	F	
1:42:17	2:23	WB	1	0	F	
1:49:15	2:15	EB	0	0	F	
2:01:15	0:42	WB	0	0	F	
2:09:30	6:45	EB	1	2	F	
2:16:45	8:50	EB	1	1	F	
2:32:00	3:00	EB	0	0	F	
2:42:00	1:45	EB	0	0	F	
3:01:00	3:34	EB	1	2	F	
3:08:37	0:59	WB	0	0	F	
3:15:50	3:25	EB	0	0	F	
3:28:59	3:11	EB	0	0	F	
3:38:40	1:35	WB	0	0	F	
3:43:10	2:10	EB	0	0	F	
3:53:20	4:32	EB	1	1	F	
4:08:25	5:55	EB	2	1	F	
4:27:50	1:40	EB	1	1	F	
4:43:30	5:02	EB	1	6	F	
4:49:30	1:20	WB	1	1	F	
4:59:30	2:30	WB	0	0	F	
5:12:00	2:22	EB	1	2	F	
5:28:30	4:55	EB	2	12	F	
5:41:45	0:45	WB	0	8	P	
5:59:55	2:05	WB	2	2	F	
6:18:58	0:55	WB	1	1	P	
6:31:08	3:14	WB	2	13	F	
7:01:43	1:35	WB	6	9	P/F	
7:20:52	3:25	WB/EB	12/1	29/1	F/F	
7:32:04	1:47	EB	10	8/1	F	
7:52:37	1:53	WB	9	12	F	
8:02:14	2:06	WB	15/2	18	F	
8:24:00	1:37	WB	6/1	18/7	F	
8:34:20	2:44	EB	7	17/1	F	
8:57:22	2:03	EB	6	13/3	F	
9:07:32	2:13	EB	5	9	F	
9:19:50	2:08	EB	9	7/1	F	

Note: Some queue lengths are reported as two numbers divided by a slash.

* First number is the northbound queue on Chicago / Second number is the westbound queue on Marlborough

**First number is the southbound queue on Chicago / Second number is the eastbound queue on Marlborough.

City of Riverside

Train Delay Study

Train Crossing on Chicago Avenue @ Marlborough Avenue

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound *	Vehicles in Queue Southbound **	F=Freight P=Passenger	Comments
9:25:55	1:07	WB	1	4	F	
9:34:45	1:47	WB	5	6	F	
10:13:08	27:16	WB/EB/EB/WB			F/F/P/F	Vehicles turned back
10:41:01	1:09					Gate down/No train
10:43:08	4:12	EB	12	19/1	F	
10:48:00	0:20					Gate down/No train
10:56:30	2:13	EB	3	6/3	F	
11:15:00	2:35	WB	3	10/3	F	
11:32:35	4:11	WB/EB	27	16/8	F/F	
11:37:35	0:17					Gate down/No train
12:34:42	0:48	WB	2	3/1	P	
12:46:33	2:34	EB	10	18	F	
13:20:57	8:37					Gate down/No train
13:28:58	5:05					Gate down/No train
14:06:47	4:54	EB	5	12/3	F	
14:12:01	1:39	WB	5	6	F	
14:32:29	2:57	WB	16/1	13/4	F	
14:44:41	3:33	WB	12/2	33/4	F	
15:16:20	2:25	WB	14	16/2	F	Train switching
15:19:15	1:30	EB	13/11	17/11	F	
15:23:32	6:08	EB/WB	25/2	45/8	F	Train switching
15:30:16	4:11	EB	19/1	31/16		Train switching
15:36:39	1:31	EB	12	10/4	F	
15:46:00	2:05	WB	19	14/4	F	
15:58:27	4:37	WB/EB	26	31/4	F/F	
16:15:10	5:04	EB	32	33/10	F	
16:20:50	0:09					Gate down/No train
17:07:18	6:10	EB/EB	27	42/13	F/F	
17:13:45	0:09					Gate down/No train
17:32:12	0:54	EB	0	2	P	
18:05:04	2:11	WB/EB	23	15/4	F/P	
18:15:11	2:21	EB	17	17	F	
18:27:27	1:55	EB	11	6	F	
18:31:36	1:25	WB	1	5	F	
18:43:08	0:40	EB	2	1	P	
19:09:26	1:54	WB	9	8/1	F	
19:31:00	2:26	EB	9	4/2	F	
19:39:59	2:21	EB	2	6/3	F	
20:10:35	1:25	WB	2	0	F	
20:21:12	2:28	WB	2	4	F	
20:37:30	1:06	EB	3	3/1	P	
20:45:30	2:00	EB	5	0	F	

Note: Some queue lengths are reported as two numbers divided by a slash.

* First number is the northbound queue on Chicago / Second number is the westbound queue on Marlborough

**First number is the southbound queue on Chicago / Second number is the eastbound queue on Marlborough.

TOTAL 240

DELAYS= 83

City of Riverside

Train Delay Study

Train Crossing on Columbia Ave @ Ardmore Street

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Eastbound*	*Vehicles in Queue Westbound*	*F=Freight P=Passenger*	*Comments*
0:07:38	1:10	NB	0	1	F	
0:12:45	0:53	SB	0	1	F	
0:24:52	3:01	NB	0	2	F	
0:31:35	2:58	NB	0	2	F	
0:38:31	7:42	NB	0	0	F	
0:54:52	4:30	NB	1	2	F	
1:13:30	3:10	NB	0	0	F	
1:26:02	1:12	NB	0	1	F	
1:31:40	2:27	NB	0	1	F	
2:09:11	1:51	NB	0	2	F	
2:20:18	2:30	SB	1	0	F	
2:33;45	1:11	SB	0	0	F	
2:57:45	1:12	SB	1	1	F	
3:32:08	3:05	NB	0	1	F	
3:49:36	2:34	NB	0	1	F	
4:10:39	3:17	NB	1	0	F	
4:30:20	2:32	NB	1	0	F	
5:12:14	1:13	SB	0	0	P	
5:13:23	2:44	NB	2	3	F	
5:28:04	6:28	NB	8	2	F	
5:47:02	0:53	SB	3	1	P	
6:11:15	1:50	NB	7	4	F	
6:17:48	0:41	SB	2	0	P	
6:32:14	1:54	NB	14	1	F	
6:40:50	5:28	NB	27	8	F	
7:03:45	2:21	NB	13	6	F	
7:23:54	2:13	NB	16	5	F	
7:36:06	2:37	NB	10	6	F	
8:27:30	1:17	SB	13	2	P	
8:33:17	2:20	NB	12	8	F	
8:48:00	2:23	SB	12	15	F	
8:59:56	3:01	SB	17	7	F	
9:18:08	2:20	NB	9	5	F	
9:47:50	2:04	NB	10	5	F	
10:04:19	3:35	NB	14	16	F	
10:10:10	2:45	SB	14	19	F	
10:25:20	2:07	SB	8	3	F	
10:31:30	1:48	NB	2	2	P	
10:52:36	2:28	SB	16	15	F	
11:19:04	4:20	NB	17	17	F	
11:33:08	1:01		3	4		*Gate down/No train*
11:34:58	1:04	NB	3	4	F	
11:39:30	1:31	SB	9	7	F	
11:50:23	3:32	SB	12	16	F	

City of Riverside

Train Delay Study

Train Crossing on Columbia Ave @ Ardmore Street

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Eastbound	Vehicles in Queue Westbound	F=Freight P=Passenger	Comments
12:34:12	0:39	SB	5	1	P	
12:48:18	1:14	SB	5	5	F	Gate down/No train
12:49:51	0:19		3	2		
12:51:35	1:56	SB	11	7	F	
13:03:40	0:24					Gate down/No train
14:02:00	5:00					Gate down/No train
14:32:03	3:24	SB	7	13	F	
14:51:45	2:39	NB	14	13	F	
15:00:12	1:33	SB	8	12	F	
15:30:50	3:33	NB	13	10	F	
15:47:19	1:57	SB	11	14	F	
16:10:53	2:06	SB	10	15	F	
16:28:25	2:25	SB	7	12	F	
16:43:30	2:27	SB	13	12	F	
17:27:16	0:45	NB	3	4	P	
17:34:08	1:58	NB	13	13	F	
17:53:43	2:53	NB	12	13	F	
18:07:50	2:10	SB	10	13	F	
18:29:08	1:08	SB	2	4	F	
18:45:22	3:00	SB	6	6	F	
18:50:07	0:43	NB	1	1	F	
19:11:46	1:24	SB	4	1	F	
19:33:15	2:41	NB	4	7	F	
19:36:51	2:31	SB	4	7	F	
20:05:18	2:06	SB	2	4	F	
20:22:29	2:35	NB	4	5	F	
20:51:56	1:23	SB/NB	4	0	F/P	
21:04:37	0:57	NB	2	2	F	
21:23:46	2:39	NB	1	0	F	
21:31:34	2:08	NB	1	0	F	
21:44:40	1:21	NB	0	1	F	
22:27:02	1:34	NB	0	0	F	
22:37:22	2:59	NB	2	3	F	
22:47:09	2:00	NB	2	1	F	
22:50:25	0:26					Gate down/No train
22:56:55	1:29	NB	3	5	F	
23:07:25	2:43	NB	1	5	F	
23:16:38	2:57	NB	1	1	F	
23:25:38	1:35	NB	0	1	F	
23:45:58	5:22	NB/SB	0	1	F/F	

TOTAL = 195

DELAYS = 84

City of Riverside

Train Delay Study

Train Crossing on Iowa Ave @ Citrus Ave

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
0:14:10	1:25	EB	5	3	F	
0:19:08	3:15	EB	1	0	F	
0:25:06	1:32	WB	1	1	F	
0:31:54	2:54	EB	1	2	F	
0:39:42	1:32	EB	0	0	F	
0:50:22	1:39	WB	0	1	F	
0:52:31	6:19	EB	1	2	F	
1:05:46	3:06	EB	1	1	F	
1:12:44	2:09	WB	2	0	F	
1:28:20	1:54	EB	1	0	F	
1:41:12	2:07	EB	0	0	F	
1:58:57	2:26	WB/EB	2	0	F/F	
2:09:06	2:32	EB	0	2	F	
2:59:40	4:23	WB	0	1	F	
3:25:15	4:03	WB	1	1	F	
4:13:46	4:21	EB	1	2	F	
4:26:41	3:27	EB	1	6	F	
4:40:44	8:19	EB	6	7	F	
4:52:50	1:49	WB	1	2	F	
4:57:02	9:32	EB	4	6	F	
5:11:33	4:31	WB/EB	0	5	P/F	
5:40:42	0:46	WB	0	3	P	
5:57:13	1:31	EB	3	7	F	
6:17:42	0:43	WB	0	1	P	
7:16:58	2:48	EB	13	10	F	
7:33:02	1:13	WB	10	13	F/P	
7:45:05	16:03	EB/WB/EB	40+	40+	F/F/F	
8:00:42	2:13	WB	7	22	F	
8:22:56	1:48	WB	20	14	F	
8:35:16	3:06	EB	22	13	F	
8:58:18	2:45	EB	15	12	F	
9:08:17	2:57	EB	11	18	F	
9:20:53	3:05	EB	10	14	F	
9:24:59	1:28	WB	12	5	F	
9:33:23	1:50	WB	11	16	F	
10:11:14	2:42	WB	15	14	F	
10:15:58	23:24	EB/WB/EB	65	58	F/P/F	*Train Stopped*
10:45:12	6:14	EB	28	18	F	
10:57:30	3:13	EB	11	6	F	
11:13:44	2:52	WB	17	13	F	
11:31:30	1:36	WB	9	4	F	
11:34:18	10:45	EB	40	33	F	*Train Stopped*
12:31:59	0:44	WB	10	3	P	
15:23:53	2:02	WB	7	2	F	
15:18:28	2:35	EB	14	21	F	
15:31:40	3:22	EB	45	14	F	

City of Riverside
Train Delay Study
Train Crossing on Iowa Ave @ Citrus Ave

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
15:43:17	2:08	WB	19	15	F	
15:55:52	3:08	WB	17	24	F	
16:00:24	2:53	EB	23	20	F	
16:15:37	6:01	EB	53	48	F	
17:08:22	11:00	EB/EB	96	70	F/F	Train Stopped
17:31:40	0:54	EB	18	13	P	
18:02:27	2:05	WB	24	15	F	
18:06:28	0:55	EB	2	11	P	
18:14:34	3:03	EB	24	18	F	
18:26:55	3:34	EB/WB	25	14	F/F	
18:42:37	0:55	EB	1	3	P	
19:06:24	2:48	WB	8	11	F	
19:30:20	2:51	EB	13	14	F	
19:39:20	3:05	EB	11	14	F	
20:07:30	1:54	WB	6	6	F	
20:18:07	2:49	WB	5	6	F	
20:36:40	1:24	EB	5	2	P	
20:53:31	1:11	EB	4	5	F	
21:17:32	3:05	EB	5	11	F	
22:41:02	1:50	EB	4	2	F	
22:52:52	1:15	WB	1	2	F	
22:56:40	2:30	WB	1	2	F	
23:12:06	2:50	WB	3	3	F	
23:24:09	2:23	WB	5	3	F	
23:27:01	1:39	EB	4	0	F	
23:32:52	0:30					Gate down/No train
23:37:54	3:57	EB	5	1	F	
23:43:52	0:32					Gate down/No train
23:46:53	4:43	EB	4	2	F	
23:59:11	5:46	EB/WB	5	3	F/F	

TOTAL 257

DELAYS = 76

City of Riverside

Train Delay Study

Train Crossing on Mary Street @ Leland Avenue

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
0:03:10	2:33	EB	1	0	F	
0:31:45	1:12	EB	0	0	F	
0:58:18	1:30	WB	0	1	F	
1:26:50	2:35	WB	0	2	F	
1:38:00	2:07	WB	0	0	F	
1:54:50	2:30	EB	2	1	F	
2:13:04	1:54	EB	1	1	F	
2:16:00	1:05	WB	1	1	F	
2:27:30	1:00	WB	0	0	F	
3:36:51	2:34	WB	0	0	P	
3:43:44	2:22	EB	0	0	F	
4:09:00	2:08	WB	3	2	F	
4:37:48	4:52	EB/WB	10	1	F/P	
5:20:45	0:57	WB	1	0	P	
5:40:30	1:00	WB	3	1	P	
5:48:30	3:10	EB/WB	2	4	F/P	
6:26:57	1:21	WB	6	1	P	
6:41:25	0:55	WB	5	1	P	
6:49:17	2:20	WB	5	3	F	
6:59:23	0:45	EB	3	2	P	
7:20:30	1:25	WB	17	6	P	
7:31:15	0:48	WB	15	5	P	
7:37:01	1:33	EB	19	10	F	
7:40:50	2:30	WB	32	13	F	
7:58:42	3:41	WB/EB	53	16	F/P	
8:34:15	2:55	WB	16	20	F	
9:10:18	2:47	WB	19	9	F	
9:20:10	2:44	EB	22	5	F	
9:45:02	2:10	WB	7	8	F	
9:53:45	2:11	EB	7	12	F	
10:28:50	3:00	EB	18	7	F	
10:29:45	2:03	WB	18	6	F	
10:43:42	3:03	EB	17	11	F	
11:18:50	3:02	WB	16	12	F	
11:23:23	2:29	EB	11	13	F	
11:35:36	2:09	WB	13	15	F	
12:39:25	0:42	WB	7	1	P	
14:06:48	0:20	EB	2	15	P	
14:18:30	2:25	WB	11	17	F	
14:30:05	0:32	EB	7	5	P	
15:13:01	2:53	WB	15	21	F	
15:15:24	0:14	EB	15	21	P	
15:32:33	1:59	WB	9	13	F	
15:51:20	2:08	WB	22	19	F	

City of Riverside
Train Delay Study
Train Crossing on Mary Street @ Leland Avenue

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
15:54:31	3:23	EB	18	12	F	
16:42:57	2:14	EB	13	11	F	
17:15:14	0:36	EB	2	3	P	
17:25:15	0:52	EB	2	11	P	
17:46:17	0:44	EB	4	6	P	
17:57:54	1:01	WB	9	6	P	
18:08:41	0:46	EB	3	4	P	
18:41:29	0:36	EB	4	3	P	
18:57:17	0:40	EB	4	7	P	
19:11:09	1:31	WB	7	8	F	
19:22:44	2:48	WB	6	11	F	
19:54:43	0:45	EB	4	4	P	
20:01:07	1:22	EB	0	0	P	
20:17:16	1:41	WB	10	19	F	
20:20:54	0:57	EB	3	6	P	
21:01:05	2:23	EB	8	10	F	
21:13:04	2:35	EB	8	12	F	
21:52:58	2:39	EB	2	14	F	
22:07:10	5:50	WB	8	12	F	
22:25:55	2:52	EB	4	5	F	
23:22:01	1:14	WB	1	1	F	
23:50:17	3:08	WB/EB	1	2	F/F	

TOTAL 124

DELAYS = 66

City of Riverside
Train Delay Study
Train Crossing on Third Street @ Commerce Street
Wednesday, August 13, 2003

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Eastbound	Vehicles in Queue Westbound	F=Freight P=Passenger	Comments
0:09:06	2:58	NB	2	1	F	
0:34:46	0:31		1	1		Gate down/no train
0:36:37	0:32		1	0		Gate down/no train
0:39:48	0:31		1	2		Gate down/no train
0:51:42	0:37		1	1		Gate down/no train
0:52:38	3:09	NB	2	0	F	
1:03:55	0:31		0	0		Gate down/no train
1:06:08	4:38	NB	2	0	F	
1:25:21	8:41	NB/SB	2	2	F/F	
1:45:08	2:27	NB	1	0	F	
1:50:02	2:49	SB	0	2	F	
2:19:04	9:27	NB/SB	0	2	F/F	
2:53:26	1:26	SB	0	0	F	
3:07:36	3:10	NB	0	0	F	
3:37:08	10:34	SB/NB	2	1	F/F	*** see comment
3:56:58	5:26	SB/NB	1	3	F/F	
4:19:50	2:00	NB	0	0	F	
4:27:30	1:47	NB	0	0	F	
4:39:50	5:55	NB/SB	0	0	F/F	
5:00:41	2:52	NB	2	1	F	
5:12:54	0:51	SB	1	2	P	
5:15:25	5:10	NB	12	7	F	
5:28:07	3:58	NB	6	8	F	
5:33:29	0:22		0	0		Gate down/no train
5:40:45	0:13	SB	3	2	P	
5:42:11	0:51		2	3		Gate down/no train
5:59:22	2:14	NB	7	1	F	
6:02:18	2:51	NB	4	4	F	
6:06:58	9:56	SB/NB	2	6	F	Train stopped
6:23:48	1:08	SB	2	6	(P)	
6:27:30	1:51	NB	4	5	F	
6:51:54	2:00	NB	6	7	F	
7:10:08	0:44	NB	1	2	F	Two engines
7:18:24	0:42		2	0		Gate down/no train
7:19:12	1:04	SB	1	9	F/P	Amtrak
7:30:08	2:12	NB	8	9	F	
7:41:41	1:30	NB	7	8	F	
8:08:21	1:44	NB	15	10	F	
8:17:41	2:06	NB	12	21	F	
8:55:44	2:32	NB	11	10	F	
9:29:18	1:05	SB	5	6	F	
10:23:01	0:56	NB	3	3	P	
10:38:29	2:42	NB	7	13	F	
10:42:51	4:26	SB/NB	26	28	F/F	
11:24:27	1:57	NB	17	11	F	
11:38:26	2:30	SB/NB	13	17	F/F	

City of Riverside
Train Delay Study
Train Crossing on Third Street @ Commerce Street
Wednesday, August 13, 2003

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Eastbound	Vehicles in Queue Westbound	F=Freight P=Passenger	Comments
12:05:33	1:14	SB	5	11	F	
12:32:57	0:42	SB	3	6	P	
12:36:52	1:59	SB	12	18	F	
13:17:26	0:42		4	4		Gate down/no train
13:18:19	3:19	NB	17	28	F	
13:47:22	2:27	NB	3	8	F	
14:15:58	1:26	SB	5	10	F	
14:38:41	2:49	NB	18	18	F	
14:55:30	1:25	SB	10	12	F	
15:12:04	2:09	NB	11	9	F	
15:21:55	4:46	SB	23	19	F	
15:36:43	5:22	SB	23	29	F	
15:50:42	2:26	NB	13	14	F	
15:54:59	1:43	SB	15	13	F	
16:15:31	1:00	SB	16	9	F	
16:21:34	0:47	NB	7	2	F	
16:27:31	3:39	NB	28	33	F	
16:51:53	1:36	NB	14	16	F	
17:24:04	0:33	NB	3	7	P	
17:49:27	1:24	NB	19	15	F	
18:14:05	0:32	NB	1	0	P	
18:32:39	1:48	NB	13	8	F	
18:34:54	4:15	SB	16	25	F	
18:42:26	0:36		2	2		Gate down/no train
18:49:14	0:34		3	5		Gate down/no train
18:55:12	0:41	NB	4	2	P	
19:07:11	2:12	SB	10	7	F	
19:27:27	2:41	NB	10	8	F	
20:06:01	0:32		1	0		Gate down/no train
20:08:56	0:27		2	1		Gate down/no train
20:15:24	0:46	NB	2	0	F	Two engines
20:29:50	1:04	SB	5	3	F	
20:44:27	2:42	NB	7	9	F	
21:08:34	1:03		3	3		Gate down/no train
21:23:25	0:52	NB	1	3	F	
21:37:08	8:48	SB/SB	12	12	F/F	
21:51:44	4:49	SB/NB	11	11	F/F	
22:10:20	0:31		5	0		Gate down/no train
22:16:42	3:02	NB	9	4	F	
22:31:00	2:58	NB	5	11	F	
22:46:33	5:01	NB	7	4	F	
23:15:11	1:33	SB	3	4	F	
23:23:32	2:59	NB	1	3	F	
23:28:33	2:13	SB	2	1	F	
23:34:35	3:50	NB	3	5	F	
23:46:43	5:42	SB/NB	10	8	F/F	

TOTAL 235

Note: Many times gates lowered with no train.
Many westbound vehicles avoided the queue by turning south on Commerce Street.
*** Gates started up but locked part way up so no vehicles could cross

DELAYS = 92

City of Riverside

Train Delay Study

Train Crossing on Tyler Street S/O Indiana Avenue

August 23, 2005

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
00:26:23	4:25	EB	1	2	F	
00:38:48	2:19	EB	0	2	F	
01:02:17	2:05	WB	0	1	F	
01:10:19	2:17	EB	0	0	F	
01:52:27	1:29	WB	0	0	F	
02:09:13	2:16	WB	0	0	F	
02:19:05	1:07	WB	0	0	P	
02:49:27	2:15	EB	0	1	F	
03:03:09	2:54	EB	0	0	F	
03:19:42	1:58	EB	0	0	F	
04:43:17	2:25	EB	5	2	F	
04:57:23	1:51	WB	0	0	F	
05:03:36	2:50	EB	3	3	F	
05:09:56	1:57	WB	4	2	F	
05:23:41	1:02	WB	2	1	P	
05:39:50	0:58	WB	2	5	P	
05:52:54	1:02	WB	6	1	P	
06:14:43	1:37	WB	3	3	F	
06:28:55	1:00	WB	3	2	P	
06:40:16	1:01	WB	4	0	P	
06:49:12	1:01	WB	10	1	P	
06:55:00	0:36	EB	8	1	P	
07:11:29	01:25	WB	8	6	F	
07:34:05	01:47	EB/WB	19	6	P/P	
07:48:26	01:57	WB	13	6	F	
08:10:20	02:15	WB	16	4	F	
08:16:31	03:07	EB/WB	23	6	F/F	
08:37:20	02:12	WB	19	9	F	
08:53:44	01:43	WB	16	8	F	
09:17:38	02:11	WB	10	12	F	
09:23:58	02:31	EB	13	11	F	
09:44:22	02:21	WB	16	9	F	
10:12:54	00:45	EB	6	2	P	
10:30:34	02:10	EB	11	13	F	
11:01:40	04:33	EB	18	19	F	
11:09:53	02:00	WB	10	9	F	
11:42:25	00:27	EB	2	2	P	
11:42:42	04:48	WB	22	14	F	
11:58:52	02:40	EB	16	14	F	
12:14:39	04:17	EB	27	19	F	
12:49:42	00:56	WB	7	3	P	
13:13:01	02:05	EB	8	19	F	
13:45:45	02:52	EB	13	24	F	
14:00:18	01:28	WB	6	8	F	
14:03:56	00:53	EB	9	11	P	

City of Riverside

Train Delay Study

Train Crossing on Tyler Street S/O Indiana Avenue

August 23, 2005

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
14:10:32	01:08	WB	6	11	F	
14:32:48	02:59	WB	14	14	P	
14:47:07	01:52	WB	17	15	F	
15:02:54	00:44	EB	13	15	P	
15:35:27	03:21	WB/EB	15	17	P/F	
15:47:53	03:06	WB	18	25	F	
16:55:26	02:34	EB	11	30	F	
17:10:41	00:39	EB	4	2	P	
17:29:02	00:51	EB	12	14	P	
17:56:54	00:54	EB	8	9	P	
18:00:15	00:58	WB	9	12	P	
18:20:53	02:10	WB	15	22	F	
18:30:40	00:40	EB	3	5	P	
18:33:01	03:16	WB	20	17	F	
18:38:38	00:37	EB	7	9	P	
19:04:57	02:12	WB	11	14	F	
19:19:17	02:41	EB	9	16	F	
19:35:48	00:44	EB	4	3	P	
19:41:31	02:02	WB	12	17	F	
19:55:29	00:50	EB	1	4	P	
20:11:33	02:30	WB	6	10	F	
20:18:32	01:16	EB	6	5	P	
20:37:46	02:42	EB	13	16	F	
20:54:35	01:49	WB	2	10	F	
21:12:03	02:35	EB	14	24	F	
21:32:01	01:55	WB	3	9	F	
22:03:10	04:05	WB/EB	6	12	F/F	
22:15:04	14:06	WB	6	4	F	
22:27:04	02:06	WB	6	4	F	
23:06:29	01:59	EB	2	4	F	
23:25:22	01:36	WB	0	0	F	
23:38:03	01:49	WB	0	3	F	
23:47:11	02:02	EB	0	0	F	
23:57:15	02:40	EB	0	1	F	

City of Riverside
Train Delay Study
Train Crossing on Madison Street S/O Indiana Avenue
August 25, 2005

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
00:27:33	05:43	WB	4	3	F	
00:38:04	02:47	EB	2	5	F	
00:41:44	01:41	WB	0	1	F	
00:57:56	15:51	WB	2	3	F	
01:17:29	04:49	EB	3	3	F	
02:00:28	03:10	EB	1	2	F	
02:14:17	04:10	EB	0	2	F	
02:25:00	00:41	WB	0	0	P	
03:10:26	02:15	WB	0	1	F	
03:16:26	02:01	EB	1	0	F	
03:21:29	01:57	WB	0	0	F	
03:42:55	03:06	EB	2	1	F	
04:01:30	04:15	EB/WB	2	0	F/F	
04:29:58	06:29	EB	2	2	F	
05:20:10	00:49	WB	1	3	P	
05:35:19	00:43	WB	1	3	P	
05:51:07	01:48	WB	6	5	P	
06:03:15	02:03	WB	12	6	F	
06:20:15	00:54	WB	4	4	P	
06:29:39	02:38	EB	19	11	F	
06:41:45	05:50	WB	7	6	P	
06:50:03	02:26	WB	15	9	F	
06:57:36	00:47	EB	3	3	P	
07:03:05	03:22	WB/EB	15	11	FP	
07:30:38	00:42	WB	7	4	P	
07:46:43	00:34	EB	9	10	P	
07:59:17	02:29	EB	13	10	F	
08:35:38	01:02	WB	4	5	P	
09:19:25	03:05	WB	11	17	F	
09:30:03	03:32	WB	18	19	F	
09:38:03	02:26	EB	12	13	F	
10:22:08	00:47	EB	4	7	P	
10:27:13	02:40	WB	13	10	F	
10:53:05	02:07	WB	13	9	F	
11:04:24	05:39	WB	20	20	F	
11:22:15	02:55	EB	23	17	F	
11:52:42	02:25	EB	10	9	F	
11:55:38	00:12		5	6		Gate down/No Train
12:28:47	03:17	WB	22	11	F	
14:00:48	00:42	EB	7	6	P	
14:26:12	02:59	EB	12	11	F	
14:31:32	00:51	WB	6	5	P	
14:43:30	01:43	WB	12	6	F	
14:47:48	02:46	EB	17	15	F	

City of Riverside
Train Delay Study
Train Crossing on Madison Street S/O Indiana Avenue
August 25, 2005

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
15:04:47	03:05	EB	20	21	F	
15:11:39	03:06	WB	25	17	F	
15:35:54	02:47	WB	17	10	F	
15:48:39	02:20	EB	19	14	F	
16:44:15	02:44	WB	20	22	F	
17:14:28	00:53	EB	11	11	P	
17:33:13	01:29	EB	7	2	P	
17:41:45	03:43	EB	20	30	F	
18:09:27	00:54	WB	12	8	P	
18:18:35	02:39	WB	27	23	F	
18:34:57	00:36	EB	10	4	P	
18:48:03	00:42	EB	3	6	P	
19:12:04	02:45	EB	9	28	F	
19:40:01	00:45	EB	4	8	P	
19:51:20	03:09	EB/WB	15	20	F/F	
20:01:57	00:51	EB	5	4	P	
20:25:11	02:58	EB/WB	19	13	F/F	
21:06:11	01:19	EB	3	7	F	
21:29:47	03:48	EB	3	9	F	
21:44:13	02:25	WB	6	10	F	
22:08:13	02:42	WB	13	10	F	
23:08:59	03:47	EB	6	10	F	
23:16:34	03:46	WB	8	9	F	
23:34:51	03:05	EB	2	5	F	

City of Riverside

Train Delay Study

Train Crossing on Gibson Street S/O Indiana Avenue

August 23, 2005

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
00:30:09	03:09	EB	1	1	F	
00:44:03	01:53	EB	0	0	F	
01:00:49	02:09	WB	0	0	F	
01:11:54	02:39	EB	0	0	F	
01:50:09	01:25	WB	0	0	F	
02:07:50	02:14	WB	0	1	F	
02:17:28	00:58	WB	0	0	P	
02:51:08	02:20	EB	0	1	F	
03:05:03	02:59	EB	0	0	F	
03:21:36	01:08	EB	0	0	F	
04:44:58	02:19	EB	0	0	F	
04:55:51	01:55	WB	1	0	F	
05:05:20	04:59	EB/WB	5	1	F/F	
05:22:26	00:48	WB	0	0	P	
05:38:34	00:56	WB	1	2	P	
05:51:40	00:48	WB	0	2	P	
06:12:40	02:07	WB	0	5	F	
06:27:34	00:56	WB	1	0	P	
06:38:53	00:53	WB	1	0	P	
06:47:05	01:02	WB	1	4	P	
06:56:30	00:46	EB	1	1	P	
07:09:26	01:52	WB	3	2	F	
07:33:27	00:56	WB	1	1	P	
07:35:37	00:42	EB	0	0	P	
07:46:23	02:25	WB	6	2	F	
08:08:39	02:20	WB	6	0	F	
08:16:01	01:01	WB	0	0	F	
08:18:45	02:32	EB	1	3	F	
08:35:42	02:17	WB	2	2	F	
08:52:08	01:43	WB	4	3	F	
09:15:52	02:10	WB	4	6	F	
09:25:40	02:19	EB	3	1	F	
09:42:34	02:20	WB	5	0	F	
10:14:27	00:46	EB	1	0	P	
10:32:11	02:21	EB	3	1	F	
11:05:02	05:10	EB/WB	3	7	F/F	
11:42:38	02:22	WB	2	2	F	
12:00:28	02:56	EB	2	4	F	
12:14:40	04:18	WB/EB	1	4	F/F	
12:48:13	00:51	WB	2	4	P	
13:14:55	03:10	EB	2	3	F	
13:47:39	02:23	EB	4	4	F	
13:58:52	01:30	WB	3	1	F	

City of Riverside

Train Delay Study

Train Crossing on Gibson Street S/O Indiana Avenue

August 23, 2005

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
14:05:42	00:51	EB	0	1	P	
14:08:44	01:26	WB	1	1	F	
14:33:33	00:55	WB	2	1	P	
14:45:32	02:04	WB	2	3	F	
15:04:08	00:44	EB	2	1	P	
15:34:18	00:52	WB	1	0	P	
15:38:09	02:36	EB	2	0	F	
15:45:51	01:51	WB	4	3	F	
16:57:35	02:40	EB	6	4	F	
17:11:50	00:39	EB	3	2	P	
17:30:50	00:42	EB	4	3	P	
17:58:38	00:57	EBWB	4	0	P/P	
18:19:15	02:07	WB	1	1	F	
18:31:09	02:31	WB/EB	2	2	F/P	
18:39:58	00:40	EB	0	2	P	
19:03:22	02:17	WB	1	1	F	
19:20:58	02:51	EB	4	3	F	
19:37:26	00:45	EB	0	0	P	
19:40:01	02:01	WB	1	2	F	
19:56:57	00:52	EB	0	0	P	
20:10:09	03:45	WB	1	1	F	
20:20:01	00:53	EB	1	0	P	
20:39:45	03:07	EB	2	4	F	
20:53:12	01:47	WB	1	1	F	
21:13:30	03:14	EB	1	2	F	
21:30:23	02:10	WB	0	0	F	
22:01:32	01:20	WB	0	2	F	
22:07:41	02:29	EB	0	1	F	
22:13:26	01:06	WB	0	0	F	
22:25:33	02:10	WB	0	2	F	
23:08:08	02:13	EB	0	1	F	
22:23:45	01:37	WB	0	0	F	
23:36:38	01:31	WB	1	0	F	
23:49:02	02:33	EB	0	0	F	
23:59:48	02:56	EB	0	0	F	

City of Riverside

Train Delay Study

Train Crossing on Jane Street S/O Indiana Avenue

August 25, 2005

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
00:26:57	03:31	WB	1	0	F	
00:35:19	01:05		0	0		Gate down/No Train
00:40:17	03:31	EB/WB	0	0	F/F	
00:57:21	03:02	WB	0	0	F	
01:21:48	03:24	EB	1	0	F	
01:49:48	01:43	WB	0	0	F	
02:02:11	03:50	EB	1	1	F	
02:17:02	03:56	EB	0	0	F	
02:23:06	01:28	WB	0	0	P	
03:09:06	02:16	WB	1	0	F	
03:18:01	02:07	EB	2	0	F	
03:20:24	02:02	WB	0	0	F	
03:44:41	03:51	EB	0	0	F	
03:49:46	00:27		0	0		Gate down/No Train
04:00:54	02:36	WB	0	1	F	
04:04:22	04:24	EB	1	0	F	
04:32:17	07:16	EB	0	0	F	
05:19:14	00:45	WB	1	0	P	
05:34:25	00:40	WB	0	0	P	
05:50:21	00:35	WB	1	0	P	
06:02:02	02:47	WB	2	1	F	
06:19:17	00:48	WB	0	1	P	
06:26:03	00:02		0	0		Gate down/No Train
06:30:58	04:26	EB	9	1	F	
06:39:23	00:24		0	0		Gate down/No Train
06:40:41	00:52	WB	3	0	P	
06:48:34	02:25	WB	2	2	F	
06:58:59	00:59	EB	1	4	P	
07:01:59	02:36	WB	1	4	F	
07:06:58	01:08	EB	1	2	P	
07:29:38	00:42	WB	0	1	P	
07:47:38	01:02	EB	2	1	P	
08:00:42	02:42	EB	3	1	F	
08:34:45	00:50	WB	2	0	P	
09:18:15	32:59	WB	2	5	F	
09:29:02	02:29	WB	2	2	F	
09:39:37	02:51	EB	3	3	F	
10:23:18	00:57	EB	1	0	P	
10:26:08	02:36	WB	3	2	F	
10:51:49	01:18	WB	0	2	F	
11:03:09	02:54	WB	5	4	F	
11:23:55	02:57	EB	2	2	F	
11:53:22	04:45	EB	5	4	F	
12:27:48	02:58	WB	6	2	F	

City of Riverside

Train Delay Study

Train Crossing on Jane Street S/O Indiana Avenue

August 25, 2005

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
14:01:56	01:07	EB	2	1	P	
14:28:12	01:48	EB	0	0	F	
14:31:04	00:46	WB	2	4	P	
14:42:14	01:33	WB	1	4	F	
14:49:21	03:29	EB	2	3	F	
15:06:27	02:58	EB	5	8	F	
15:10:26	02:57	WB	3	8	F	
15:34:51	02:34	WB	2	3	F	
15:50:10	02:36	EB	2	3	F	
17:15:41	00:55	EB	2	5	P	
17:34:25	01:07	EB	3	6	P	
17:43:20	03:00	WB	3	15	F	
18:08:29	00:49	WB	1	7	P	
18:17:26	02:20	WB	1	9	F	
18:35:56	00:41	EB	1	2	P	
18:49:11	00:52	EB	1	1	P	
19:13:34	02:47	EB	4	5	F	
19:41:09	00:52	EB	1	1	P	
19:50:48	04:36	WB	2	10	F	
20:03:12	00:54	EB	0	1	P	
20:25:09	04:08	WB	3	10	F	
21:08:47	01:11	EB	0	1	F	
21:32:45	03:22	EB	0	7	F	
21:43:31	02:19	WB	0	6	F	
22:07:12	03:02	WB	0	1	F	
23:12:08	06:29	EB	3	1	F	
23:37:02	03:19	EB	0	1	F	

City of Riverside

Train Delay Study

Train Crossing on Adams Street S/O Indiana Avenue

August 30, 2005

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
00:02:09	2:55	EB	1	4	F	
00:14:39	2:42	EB	1	1	F	
00:38:59	2:15	WB	0	1	F	
00:51:22	2:33	EB	0	0	F	
01:04:57	1:22	WB	4	0	F	
01:11:02	5:11	EB	1	2	F	
01:26:59	3:02	EB	1	1	F	
01:42:26	2:03	WB	1	1	F	
01:47:10	4:20	EB	1	0	F	
01:57:28	1:41	WB	1	1	F	
02:08:31	1:07	WB	0	1	F	
02:17:04	0:40	WB	0	0	P	
02:32:19	2:32	EB	2	0	F	
02:55:41	4:00	WB/EB	2	1	F/F	
03:22:14	1:51	WB	0	1	F	
03:39:11	2:29	EB	0	0	F	
04:06:54	2:45	EB	0	2	F	
04:52:58	2:35	EB	0	2	F	
05:23:59	0:28	WB	2	1	F	
05:30:15	2:34	EB	2	7	F	
05:47:33	0:59	WB	2	2	P	
05:57:48	0:29	WB	2	2	P	
06:09:54	0:43	WB	3	3	P	
06:26:10	0:25	WB	3	6	P	
06:42:53	0:32	WB	5	7	P	
06:47:08	2:42	EB	21	18	F	
06:54:29	2:23	WB	27	23	F	
07:10:57	2:13	WB	29	16	F	
07:39:32	1:46	EB/WB	13	10	F	
07:51:49	0:39	EB	4	1	P	
08:09:37	0:28	WB	6	3	P	
08:21:08	3:28	EB/WB	34	16	F	
08:53:27	2:04	WB	27	16	F	
09:30:54	1:18	WB	12	11	F	
09:43:06	1:48	WB	15	12	F	
09:57:26	2:14	WB	17	14	F	
10:23:09	2:49	EB	19	16	F	
10:39:28	1:17	EB	7	18	P	
11:26:59	2:17	WB	20	20	F	
11:49:16	2:38	EB	22	15	F	
12:26:27	2:09	WB	16	13	F	
12:42:34	1:10	WB	7	12	P	
12:57:33	2:31	EB	16	27	F	
12:58:14	1:08	EB	17	21	P	

City of Riverside

Train Delay Study

Train Crossing on Adams Street S/O Indiana Avenue

August 30, 2005

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
14:06:44	2:47	EB	19	24	F	
14:16:28	2:55	EB	18	22	F	
14:31:21	0:35	WB	2	16	P	
14:59:06	1:05	WB	2	15	F	
15:04:14	0:49	EB	9	12	P	
15:14:58	2:49	EB	29	33	F	
15:19:22	0:13		2	9		Gates Down/No Train
15:27:00	3:25	EB	30	35	F	
15:31:41	0:41	WB	11	8	P	
15:56:06	2:07	WB	26	25	F	
17:15:02	1:08	EB	19	17	P	
17:32:09	0:52	EB	15	9	P	
17:35:08	2:46	WB	29	25	F	
17:57:11	0:40	WB	8	8	P	
17:59:18	0:40	EB	14	13	P	
18:08:53	4:20	WB/EB	34	40	F/F	
18:22:26	1:59	WB	20	9	F	
18:29:23	0:41	EB	12	6	P	
18:37:44	0:39	EB	2	0	P	
19:17:05	1:49	WB	9	17	F	
19:37:13	0:36	EB	3	1	P	
19:46:18	3:18	EB	14	17	F	
19:59:38	3:25	EB	7	12	F	
20:05:44	0:46	EB	3	3	P	
21:24:38	2:02	EB	4	11	F	
21:51:24	2:35	WB	0	9	F	
21:57:54	0:40	EB	0	2	F	
22:50:18	1:53	EB	0	1	F	
23:19:19	1:30	WB	0	3	F	
23:49:16	5:37	WB/EB	4	4	F/F	

City of Riverside

Train Delay Study

Train Crossing on Mary Street S/O Indiana Avenue

August 31, 2005

Time	Length of Delay Min/Sec	Direction of Train Travel	Vehicles in Queue Northbound	Vehicles in Queue Southbound	F=Freight P=Passenger	Comments
00:06:02	3:34	EB	4	1	F	
00:19:56	0:44		0	0		Gate down/No Train
00:21:31	6:53	EB	1	1	F	
00:35:48	3:13	WB	2	3	F	
00:54:17	3:54	EB	0	2	F	
00:36:52	2:26	WB	1	1	F	
00:41:55	6:42	EB	0	5	F	
00:56:52	8:09	EB/WB	1	0	F	
01:16:21	3:00	EB	0	1	F	
01:30:14	4:19	EB	1	2	F	
01:39:14	2:05	WB	2	2	F	
01:52:19	4:37	EB/WB	1	0	F	
02:05:29	1:37	EB	0	0	F	
02:14:26	0:53	WB	0	0	P	
02:35:35	3:11	EB	1	0	F	
02:52:48	3:14	WB	0	0	F	
03:00:59	2:29	EB	1	2	F	
03:19:19	2:47	WB	1	0	F	
03:41:31	2:57	EB	0	0	F	
04:09:51	3:50	EB	0	1	F	
04:45:54	3:55	EB	4	5	F	
05:21:53	0:54	WB	2	3	P	
05:33:02	3:00	EB	11	1	F	
05:45:19	1:00	WB	0	0	P	
05:55:34	1:04	WB	0	1	P	
06:07:44	1:10	WB	4	3	P	
06:23:54	1:03	WB	3	0	P	
06:40:44	1:01	WB	3	2	P	
06:49:46	4:24	EB/WB	27	19	F	
07:07:46	3:18	WB	37	9	F	
07:56:42	2:31	WB	48	10	F	
07:41:58	0:45	EB	10	3	P	
07:53:42	0:47	EB	5	2	P	
08:19:32	3:00	WB	27	9	F	
08:32:33	3:25	EB	32	13	F	
08:49:55	3:14	WB	25	13	F	
09:28:16	1:45	WB	9	6	F	
09:40:05	2:35	WB	22	11	F	
09:54:16	3:05	WB	13	10	F	
10:29:42	3:16	EB	15	11	F	
10:41:22	0:55	EB	0	0	P	
11:23:51	3:03	WB	8	17	F	
11:51:41	2:48	EB	8	12	F	

City of Riverside

Train Delay Study

Train Crossing on Mary Street S/O Indiana Avenue

August 31, 2005

Time	*Length of Delay Min/Sec*	*Direction of Train Travel*	*Vehicles in Queue Northbound*	*Vehicles in Queue Southbound*	*F=Freight P=Passenger*	*Comments*
12:02:11	1:26	WB	4	9	F	
12:23:48	2:38	WB	15	11	F	
12:39:38	1:07	WB	6	5	P	
13:01:48	1:46	EB	9	15	F	
14:00:35	0:42	EB	7	3	P	
14:09:36	2:41	EB	21	25	F	
14:19:17	2:55	EB	20	25	F	
14:29:31	0:53	WB	9	4	P	
14:57:06	1:08	WB	19	11	F	
15:06:16	0:48	EB	5	1	P	
15:18:01	2:44	EB	15	26	F	
15:29:44	3:37	WB/EB	23	24	P/F	
15:53:59	2:25	WB	21	26	F	
17:17:23	0:36	EB	3	14	P	
17:32:16	2:49	WB/EB	16	35	F/P	
17:55:10	1:02	WB	6	15	P	
18:01:26	0:44	EB	2	9	P	
18:06:09	2:47	WB	22	29	F	
18:14:01	2:44	EB	25	35	F	
18:19:59	2:53	WB	15	26	F	
18:31:29	0:39	EB	18	4	P	
18:39:57	0:41	EB	1	4	P	
19:14:07	2:56	WB	15	19	F	
19:39:13	0:41	EB	3	6	P	
19:50:03	3:04	EB	13	16	F	
20:02:38	3:28	EB	14	23	F	
20:07:59	0:50	EB	1	4	P	
20:54:03	2:06	WB	1	11	F	
21:27:59	1:47	EB	3	9	F	
21:48:28	3:30	WB	3	8	F	
22:26:38	2:36	EB	0	5	F	
22:39:42	2:36	EB	3	4	F	
22:54:14	1:55	EB	1	2	F	
23:16:42	2:05	WB	1	1	F	

City of Riverside
Train Blocking Delay Study

Buchannon Street @ BNSF Crossing

Date: 9/6/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound
	0:05:53	0:08:21	0:02:28	Eastbound	Freight	0	0	0	0
	0:55:56	0:57:13	0:01:17	Westbound	Freight	0	1	0	0
	1:06:55	1:09:18	0:02:23	Westbound	Freight	0	1	0	0
	1:13:29	1:15:26	0:01:57	Westbound	Freight	0	1	0	0
	1:23:00	1:25:06	0:02:06	Westbound	Freight	0	1	0	0
	2:17:30	2:19:21	0:01:51	Eastbound	Freight	1	0	0	0
	2:33:11	-	-	Eastbound	Freight	-	-	-	-
*	-	2:35:56	0:02:45	Westbound	Metrolink	0	1	0	0
	2:45:15	2:47:22	0:02:07	Westbound	Freight	0	0	0	0
	2:59:40	3:01:37	0:01:57	Eastbound	Freight	0	0	0	0
	3:32:41	3:34:21	0:01:40	Westbound	Freight	0	0	0	0
	3:57:42	4:00:14	0:02:32	Eastbound	Freight	0	0	0	0
	4:01:56	4:04:26	0:02:30	Eastbound	Freight	0	0	0	0
	4:14:16	4:15:16	0:01:00	Westbound	Freight	3	0	0	0
	4:23:42	4:26:16	0:02:34	Eastbound	Freight	2	1	0	0
	4:49:12	4:51:39	0:02:27	Eastbound	Freight	3	0	0	0
	5:03:14	5:06:00	0:02:46	Westbound	Freight	2	1	0	0
	5:15:43	5:18:11	0:02:28	Eastbound	Freight	3	1	0	0
	5:22:47	5:23:46	0:00:59	Westbound	Metrolink	4	0	0	0
	5:40:21	5:41:20	0:00:59	Westbound	Metrolink	3	0	0	0
	5:52:04	5:53:05	0:01:01	Westbound	Metrolink	2	0	0	0
	6:01:18	6:02:57	0:01:39	Westbound	Freight	2	0	0	0
	6:27:45	6:28:44	0:00:59	Westbound	Metrolink	4	0	0	0
	6:38:57	6:39:56	0:00:59	Westbound	Metrolink	2	1	0	0
	6:44:33	6:45:44	0:01:11	Westbound	Passenger	9	2	0	0
	6:58:44	6:59:45	0:01:01	Eastbound	Metrolink	11	1	0	0
	7:28:55	7:29:57	0:01:02	Eastbound	Metrolink	4	7	0	0
	7:41:30	7:42:32	0:01:02	Westbound	Metrolink	7	5	0	0
	8:22:45	8:25:12	0:02:27	Westbound	Freight	8	2	0	0
	8:44:14	8:46:55	0:02:41	Eastbound	Freight	8	3	1	2
	9:10:55	9:11:55	0:01:00	Eastbound	Metrolink	11	5	1	0
	9:13:12	9:14:07	0:00:55	Westbound	Freight	2	0	0	0
	10:01:22	10:04:05	0:02:43	Eastbound	Freight	11	5	1	0
	10:12:11	10:13:10	0:00:59	Eastbound	Metrolink	3	0	0	0
	10:30:05	10:32:46	0:02:41	Eastbound	Freight	4	10	0	0
**	10:50:31	10:51:46	0:01:15	-	-	4	1	0	0
**	10:53:45	10:54:40	0:00:55	-	-	4	3	0	0
	11:03:24	11:04:25	0:01:01	Westbound	Metrolink	1	0	0	0
	11:38:55	11:41:26	0:02:31	Eastbound	Freight	9	5	0	0
	11:55:15	11:56:20	0:01:05	Westbound	Metrolink	6	1	0	0
	12:09:57	12:11:55	0:01:58	Westbound	Freight	4	2	0	0
	12:22:32	12:32:32	0:10:00	Eastbound	Metrolink	2	5	0	0
	12:39:00	12:41:32	0:02:32	Eastbound	Freight	11	7	0	0
	13:05:07	13:07:48	0:02:41	Westbound	Freight	11	6	0	0
	13:22:51	13:23:42	0:00:51	Westbound	Metrolink	2	5	0	0
	13:49:26	13:50:20	0:00:54	Eastbound	Metrolink	4	4	0	0
	14:18:24	14:21:00	0:02:36	Eastbound	Freight	5	8	0	0
	14:34:51	14:35:42	0:00:51	Westbound	Metrolink	3	5	0	1
	14:43:56	14:46:30	0:02:34	Eastbound	Freight	9	6	0	1
	14:54:11	14:54:58	0:00:47	Eastbound	Metrolink	6	7	0	0
	15:17:04	15:19:43	0:02:39	Westbound	Freight	14	14	0	0

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

Buchannon Street @ BNSF Crossing

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound
	15:37:04	15:37:57	0:00:53	Westbound	Metrolink	)	2	0	1
	15:49:08	15:51:36	0:02:28	Eastbound	Freight	8	9	0	0
	16:11:44	16:14:14	0:02:30	Eastbound	Freight	11	14	0	0
	16:34:38	16:36:53	0:02:15	Eastbound	Freight	6	10	0	0
	17:01:09	17:02:10	0:01:01	Eastbound	Metrolink	6	7	0	0
	17:18:58	17:21:15	0:02:17	Eastbound	Freight	9	8	0	0
	17:23:38	17:26:01	0:02:23	Westbound	Freight	8	8	1	0
	17:30:13	17:31:19	0:01:06	Eastbound	Metrolink	9	4	0	0
	17:46:36	17:47:26	0:00:50	Eastbound	Metrolink	3	5	0	0
	18:03:53	18:04:44	0:00:51	Westbound	Metrolink	0	0	0	0
	18:13:36	18:15:12	0:01:36	Westbound	Freight	3	7	1	0
	18:26:24	-	-	Eastbound	Metrolink	-	-	-	-
*	-	18:28:45	0:02:21	Westbound	Freight	10	10	0	0
	18:34:41	-	-	Eastbound	Metrolink	-	-	-	-
*	-	18:36:32	0:01:51	Westbound	Freight	4	11	0	0
	19:07:20	19:09:17	0:01:57	Westbound	Freight	5	8	0	0
	19:22:18	19:23:29	0:01:11	Eastbound	Freight	4	3	0	0
	19:31:41	19:32:47	0:01:06	Eastbound	Metrolink	8	7	0	0
	19:55:46	19:56:51	0:01:05	Eastbound	Passenger	2	7	0	0
	20:40:20	20:43:13	0:02:53	Westbound	Freight	2	6	0	0
	20:53:52	20:55:31	0:01:39	Eastbound	Freight	7	4	0	0
	20:56:04	20:58:29	0:02:25	Westbound	Freight	6	4	0	0
	21:10:23	21:11:27	0:01:04	Westbound	Freight	2	1	0	0
	21:19:55	21:20:41	0:00:46	Eastbound	Freight	5	3	0	0
	21:27:20	21:28:17	0:00:57	Eastbound	Freight	2	3	1	0
	21:37:38	21:40:17	0:02:39	Eastbound	Freight	7	9	0	0
	21:45:39	21:47:23	0:01:44	Westbound	Freight	1	2	0	0
	22:41:40	22:43:07	0:01:27	Westbound	Freight	1	1	0	0
	23:13:02	23:14:57	0:01:55	Eastbound	Freight	2	3	0	0
	23:42:53	23:44:19	0:01:26	Eastbound	Freight	0	0	0	0
	Total Blocking Delay:		143 minutes						
		Delays =	81		Total	335	284		
					Average	4.4	3.6		

* indicates two trains passing at the same time

**indicates gates when down with no train passing through

City of Riverside
Train Blocking Delay Study

Brockton Avenue @ Union Pacific Crossing

Date: 9/12/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound
	1:51:49	1:54:06	0:02:17	Eastbound	Freight	0	0	0	0
	2:06:30	2:09:34	0:03:04	Eastbound	Freight	1	0	0	0
	2:19:45	2:24:44	0:04:59	Eastbound	Freight	2	0	0	0
	3:06:34	3:19:57	0:13:23	Eastbound	Freight	0	0	0	0
	3:55:27	3:58:41	0:03:14	Eastbound	Freight	0	0	0	0
	4:44:41	4:46:55	0:02:14	Westbound	Metrolink	0	0	0	0
	4:50:22	5:01:23	0:11:01	Eastbound	Freight	0	1	0	0
	5:20:23	5:24:13	0:03:50	Eastbound	Freight	4	4	0	0
	5:46:42	5:47:16	0:00:34	Westbound	Metrolink	1	1	0	0
	6:08:11	6:11:49	0:03:38	Eastbound	Freight	2	5	0	0
	6:19:38	6:20:20	0:00:42	Westbound	Metrolink	2	3	0	0
**	6:53:56	6:54:40	0:00:44	-	-	2	1	0	0
	6:54:53	6:55:20	0:00:27	Westbound	Metrolink	2	2	0	0
	6:55:51	-	-	Westbound	Metrolink	-	-	-	-
*	-	7:01:12	0:05:21	Eastbound	Freight	8	21	0	0
	8:12:26	8:15:29	0:03:03	Eastbound	Freight	17	13	0	0
	8:22:06	8:22:52	0:00:46	Westbound	Metrolink	7	6	0	0
	8:47:07	8:49:28	0:02:21	Eastbound	Freight	13	15	0	0
	11:15:40	11:20:45	0:05:05	Eastbound	Freight	33	34	0	0
	12:14:34	12:19:06	0:04:32	Eastbound	Freight	46	43	0	0
	13:10:25	13:15:35	0:05:10	Eastbound	Freight	38	34	0	0
	13:26:21	13:30:54	0:04:33	Eastbound	Freight	27	25	1	1
	14:34:50	14:35:25	0:00:35	Eastbound	Metrolink	5	5	0	0
	15:11:31	15:12:09	0:00:38	Westbound	Metrolink	6	10	0	0
	15:49:00	15:50:42	0:01:42	Eastbound	Freight	68	47	0	0
	16:27:28	16:30:55	0:03:27	Eastbound	Freight	30	20	0	0
	16:47:45	16:52:00	0:04:15	Eastbound	Freight	58	26	0	0
	17:30:59	17:31:25	0:00:26	Eastbound	Metrolink	18	5	0	0
	18:16:12	18:16:46	0:00:34	Eastbound	Metrolink	3	1	0	0
	18:38:16	18:39:17	0:01:01	Eastbound	Metrolink	2	2	0	0
	19:13:13	19:13:47	0:00:34	Eastbound	Metrolink	4	2	0	0
	19:43:09	19:43:41	0:00:32	Eastbound	Metrolink	0	1	0	0
	19:57:13	19:59:47	0:02:34	Eastbound	Freight	12	14	0	0
	20:01:08	20:03:12	0:02:04	Eastbound	Freight	9	6	1	0
	20:21:02	20:22:35	0:01:33	Eastbound	Freight	1	6	0	0
	20:55:17	21:06:11	0:10:54	Eastbound	Freight	2	6	0	0
	21:39:59	21:43:08	0:03:09	Eastbound	Freight	1	9	0	0
	22:34:52	22:37:06	0:02:14	Eastbound	Freight	1	3	0	0
	22:47:16	22:51:12	0:03:56	Eastbound	Freight	2	7	0	1
	23:38:58	23:41:35	0:02:37	Eastbound	Freight	1	6	0	0
	23:51:02	0:06:13	0:15:05	Eastbound	Freight	3	2	0	0
	Total Blocking Delay:		139 minutes		Total	431	386		
					Average	10.8	9.7		
		Delays = 41							

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

City of Riverside
Train Blocking Delay Study

Columbia Avenue @ BNSF Crossing

Date: 9/11/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Eastbound	# of Cars Westbound	# of Peds Eastbound	# of Peds Westbound
	0:08:06	0:11:36	0:03:30	Northbound	Freight	0	2	0	0
	0:27:48	0:30:45	0:02:57	Northbound	Freight	0	0	0	0
	0:34:52	0:36:52	0:02:00	Southbound	Freight	1	0	0	0
	0:45:07	0:48:01	0:02:54	Southbound	Freight	0	1	0	0
	1:00:23	1:03:14	0:02:51	Northbound	Freight	1	1	0	0
	1:14:47	1:17:23	0:02:36	Northbound	Freight	0	0	0	0
	1:19:20	1:21:51	0:02:31	Southbound	Freight	2	0	0	0
	1:25:14	1:28:15	0:03:01	Northbound	Freight	1	1	0	0
	1:48:28	1:50:50	0:02:22	Southbound	Freight	6	1	0	0
	1:57:39	1:59:45	0:02:06	Southbound	Freight	3	0	0	0
	2:11:45	2:14:48	0:03:03	Southbound	Freight	0	0	0	0
	2:25:29	2:29:13	0:03:44	Southbound	Freight	3	2	0	0
	2:45:55	-	-	Southbound	Freight	-	-	-	-
*	-	2:51:04	0:05:09	Northbound	Freight	1	1	0	0
	2:51:27	2:53:35	0:02:08	Southbound	Freight	1	2	0	0
	3:05:54	3:07:47	0:01:53	Northbound	Freight	0	1	0	0
	3:14:42	3:18:27	0:03:45	Northbound	Freight	0	0	0	0
	3:38:06	3:40:26	0:02:20	Northbound	Freight	3	1	0	0
	3:52:53	-	-	Southbound	Freight	-	-	-	-
*	-	3:59:30	0:06:37	Northbound	Freight	1	3	0	0
	4:04:23	4:07:12	0:02:49	Southbound	Freight	3	3	0	0
	4:12:20	4:15:10	0:02:50	Northbound	Freight	2	1	0	0
	4:23:42	4:30:03	0:06:21	Northbound	Freight	6	8	0	0
	4:50:53	4:53:23	0:02:30	Southbound	Freight	12	7	0	0
	5:05:26	5:06:13	0:00:47	Southbound	Metrolink	0	6	0	0
	5:12:48	5:15:11	0:02:23	Northbound	Freight	2	2	0	0
	5:24:27	5:26:58	0:02:31	Northbound	Freight	5	5	0	0
	5:33:02	5:33:58	0:00:56	Southbound	Metrolink	3	1	0	0
	5:41:31	5:42:28	0:00:57	Southbound	Passenger	3	0	0	0
	5:54:20	5:56:58	0:02:38	Southbound	Freight	17	5	0	0
	6:03:50	6:06:40	0:02:50	Northbound	Freight	18	6	0	0
	6:09:35	6:10:14	0:00:39	Southbound	Metrolink	4	1	0	0
	6:42:04	-	-	Northbound	Freight	-	-	-	-
*	-	6:45:50	0:03:46	Southbound	Freight	8	16	0	0
	6:53:58	6:57:07	0:03:09	Northbound	Freight	10	26	0	0
	7:04:59	7:07:30	0:02:31	Southbound	Freight	30	12	0	0
	7:25:55	-	-	Northbound	Freight	-	-	-	-
*	-	7:30:15	0:04:20	Southbound	Freight	51	21	0	0
	7:34:56	7:36:00	0:01:04	Southbound	Freight	18	8	0	0
	7:46:00	7:48:59	0:02:59	Southbound	Freight	57	15	0	0
	7:58:50	8:02:35	0:03:45	Northbound	Freight	46	20	0	0
	8:12:01	8:13:40	0:01:39	Southbound	Freight	30	9	0	0
	8:50:30	8:52:46	0:02:16	Southbound	Freight	23	17	0	0
	9:05:18	9:07:14	0:01:56	Southbound	Freight	18	12	0	0
	9:11:38	9:14:19	0:02:41	Northbound	Freight	15	13	0	0
	9:22:25	-	-	Northbound	Freight	-	-	-	-
*	-	9:28:05	0:05:40	Southbound	Freight	37	26	0	0
	9:54:19	9:55:53	0:01:34	Southbound	Freight	14	9	1	0
	10:22:45	10:25:11	0:02:26	Southbound	Freight	13	14	0	0
	10:28:24	10:29:04	0:00:40	Northbound	Metrolink	2	2	0	0
	10:37:40	10:40:14	0:02:34	Northbound	Freight	20	18	0	0

* indicates two trains passing at the same time.
**indicates gates when down with no train passing through.

Columbia Avenue @ BNSF Crossing

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Eastbound	# of Cars Westbound	# of Peds Eastbound	# of Peds Westbound
10:47:26	10:50:56	0:03:30	Southbound	Freight	14	11	0	0
11:35:09	11:35:37	0:00:28	Southbound	Metrolink	1	3	0	0
11:39:01	11:42:19	0:03:18	Southbound	Freight	17	14	0	0
11:51:03	11:58:19	0:07:16	Southbound	Freight	33	36	0	0
12:09:33	-	-	Southbound	Freight	-	-	-	-
* -	12:11:52	0:02:19	Northbound	Freight	14	23	0	0
12:25:56	12:28:13	0:02:17	Southbound	Freight	19	19	0	0
12:50:39	12:53:57	0:03:18	Northbound	Freight	14	18	0	1
13:37:37	13:40:19	0:02:42	Northbound	Freight	17	10	0	0
13:45:27	13:48:21	0:02:54	Northbound	Freight	14	10	0	0
14:10:18	14:13:08	0:02:50	Southbound	Freight	14	32	0	0
14:31:55	14:34:54	0:02:59	Northbound	Freight	18	36	0	0
14:38:01	14:39:52	0:01:51	Southbound	Freight	19	21	0	0
15:01:36	15:04:20	0:02:44	Northbound	Freight	13	28	0	0
15:23:36	15:26:17	0:02:41	Northbound	Freight	14	19	0	0
15:33:37	-	-	Northbound	Freight	-	-	-	-
* -	15:43:38	0:10:01	Southbound	Freight	37	47	1	1
15:51:23	15:55:35	0:04:12	Northbound	Freight	35	14	0	0
16:04:37	-	-	Southbound	Freight	-	-	-	-
* -	16:09:48	0:05:11	Northbound	Freight	36	49	0	0
17:02:22	17:04:46	0:02:24	Southbound	Freight	24	37	0	0
17:18:05	17:18:48	0:00:43	Northbound	Metrolink	12	9	0	0
18:02:26	18:07:03	0:04:37	Southbound	Freight	22	24	0	0
18:07:34	18:08:11	0:00:37	Northbound	Metrolink	10	12	0	0
18:31:36	18:34:59	0:03:23	Northbound	Freight	7	20	0	1
18:40:15	18:40:59	0:00:44	Northbound	Metrolink	2	3	0	0
18:53:43	18:56:50	0:03:07	Northbound	Freight	9	11	0	0
19:05:38	19:08:32	0:02:54	Northbound	Freight	8	10	0	0
19:32:52	19:36:00	0:03:08	Northbound	Freight	10	15	0	0
19:45:38	19:48:26	0:02:48	Southbound	Freight	4	9	0	0
19:56:27	19:59:20	0:02:53	Southbound	Freight	0	0	0	0
20:13:41	20:15:22	0:01:41	Northbound	Passenger	0	6	0	0
20:17:32	20:23:38	0:06:06	Northbound	Freight	7	11	0	0
20:32:14	20:37:52	0:05:38	Northbound	Freight	3	13	0	0
20:43:10	20:46:17	0:03:07	Northbound	Freight	4	5	0	0
20:54:45	21:30:42	0:35:57	Northbound	Freight	9	13	0	0
21:31:36	21:33:07	0:01:31	Southbound	Freight	3	1	0	0
21:42:33	21:50:25	0:07:52	Northbound	Freight	1	1	0	0
22:08:51	22:09:52	0:01:01	Northbound	Freight	4	5	0	0
22:20:34	22:23:28	0:02:54	Southbound	Freight	2	1	0	0
22:43:39	22:44:57	0:01:18	Southbound	Freight	0	1	0	0
22:57:12	22:59:40	0:02:28	Northbound	Freight	2	6	0	0
23:15:52	23:17:08	0:01:16	Southbound	Freight	1	2	0	0
23:48:14	23:50:42	0:02:28	Southbound	Freight	1	2	0	0
Total Blocking Delay:		4:47:44	hours					
		288 Minutes		Total	964	906		
				Average	11.1	10.4		
	Delays = 95							

* indicates two trains passing at the same time

**indicates gates when down with no train passing through

City of Riverside
Train Blocking Delay Study

Iowa Avenue @ BNSF Crossing

Date: 9/11/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
	0:09:05	0:13:25	0:04:20	Eastbound	Freight	3	2	0	0	1
	0:29:10	0:32:06	0:02:56	Eastbound	Freight	1	1	0	0	2
	0:32:40	0:36:27	0:03:47	Westbound	Freight	5	2	0	0	3
	0:45:37	0:47:40	0:02:03	Westbound	Freight	2	5	0	0	4
	1:01:29	1:04:41	0:03:12	Eastbound	Freight	3	0	0	0	5
	1:15:48	-	-	Eastbound	Freight	-	-	-	-	6
*	-	1:21:21	0:05:33	Westbound	Freight	5	3	0	0	7
	1:26:24	1:29:40	0:03:16	Eastbound	Freight	1	1	1	0	8
	1:47:49	1:50:35	0:02:46	Westbound	Freight	0	2	0	0	9
	1:57:02	1:59:10	0:02:08	Westbound	Freight	1	0	0	0	10
	2:11:04	2:14:00	0:02:56	Westbound	Freight	3	0	0	0	11
	2:24:30	2:28:16	0:03:46	Westbound	Freight	0	0	0	0	12
	2:45:17	2:48:25	0:03:08	Westbound	Freight	0	0	0	0	13
	2:48:24	-	-	Eastbound	Freight	-	-	0	0	14
*	-	2:52:51	0:04:27	Westbound	Freight	3	2	0	0	15
	3:06:48	3:09:12	0:02:24	Eastbound	Freight	1	3	0	0	16
	3:15:46	3:20:25	0:04:39	Eastbound	Freight	1	2	0	0	17
	3:38:42	3:41:50	0:03:08	Eastbound	Freight	2	2	0	0	18
	3:52:10	3:54:15	0:02:05	Westbound	Freight	2	1	0	0	19
	3:54:35	4:01:17	0:06:42	Eastbound	Freight	3	2	0	0	20
	4:03:54	4:06:45	0:02:51	Westbound	Freight	4	2	0	0	21
	4:13:25	4:17:03	0:03:38	Eastbound	Freight	0	1	0	0	22
	4:25:45	4:32:05	0:06:20	Eastbound	Freight	6	4	0	0	23
	4:50:05	4:53:03	0:02:58	Westbound	Freight	3	8	0	0	24
	5:05:15	5:05:59	0:00:44	Westbound	Metrolink	4	1	0	0	25
	5:13:43	5:16:28	0:02:45	Eastbound	Freight	2	5	0	0	26
	5:25:02	5:28:25	0:03:23	Eastbound	Freight	8	12	0	1	27
	5:32:50	5:33:35	0:00:45	Westbound	Metrolink	2	4	0	0	28
	5:40:50	5:41:55	0:01:05	Westbound	Passenger	3	6	0	0	29
	5:33:20	5:55:10	0:21:50	Westbound	Freight	14	22	0	1	30
	6:04:50	6:07:50	0:03:00	Eastbound	Freight	12	11	0	0	31
	6:09:20	6:10:00	0:00:40	Westbound	Metrolink	5	2	0	0	32
	6:41:47	-	-	Westbound	Freight	25	23	0	0	33
*	-	6:45:50	0:04:03	Eastbound	Freight	25	23	0	0	34
	6:54:25	6:59:01	0:04:36	Eastbound	Freight	45	45	0	0	35
	7:03:56	7:06:40	0:02:44	Westbound	Freight	23	20	0	0	36
**	7:10:22	7:10:37	0:00:15	-	-	0	0	0	0	37
	7:25:50	-	-	Westbound	Freight	-	-	-	-	38
*	-	7:32:08	0:06:18	Eastbound	Freight	39	33	0	0	39
	7:33:55	7:35:15	0:01:20	Westbound	Freight	11	15	0	0	40
**	7:41:17	7:41:35	0:00:18	-	-	1	8	0	0	41
	7:44:43	7:48:01	0:03:18	Westbound	Freight	31	28	0	0	42
	8:01:22	8:04:12	0:02:50	Eastbound	Freight	45	41	0	0	43
	8:11:07	8:13:28	0:02:21	Westbound	Freight	18	15	0	0	44
**	8:24:28	8:24:45	0:00:17	-	-	0	0	0	0	45
**	8:25:21	8:25:45	0:00:24	-	-	4	6	0	0	46
**	8:30:34	8:31:24	0:00:50	-	-	2	3	0	0	47
**	8:44:58	8:45:13	0:00:15	-	-	4	2	0	0	48
**	8:46:32	8:47:16	0:00:44	-	-	6	4	0	0	49
**	8:47:21	8:48:23	0:01:02	-	-	0	0	0	0	50
	8:49:30	8:52:44	0:03:14	Westbound	Freight	20	18	0	0	51

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

Iowa Avenue @ BNSF Crossing

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
**	8:54:12	8:54:20	0:00:08	-	-	0	0	0	0	52
	9:04:23	9:06:47	0:02:24	Westbound	Freight	22	16	0	0	53
	9:12:16	9:15:34	0:03:18	Eastbound	Freight	21	25	0	0	54
	9:23:17	-	-	Eastbound	Freight	-	-	-	-	55
*	-	9:29:43	0:06:26	Westbound	Freight	29	32	0	0	56
	9:50:06	9:54:56	0:04:50	Eastbound	Freight	31	28	0	0	57
	10:11:08	10:15:36	0:04:28	Eastbound	Freight	27	30	0	0	58
	10:18:25	10:21:30	0:03:05	Eastbound	Freight	14	9	0	0	59
	10:31:29	10:32:16	0:00:47	Eastbound	Metrolink	1	2	0	0	60
	10:42:38	10:45:26	0:02:48	Westbound	Freight	18	24	0	0	61
	11:12:37	11:16:15	0:03:38	Eastbound	Freight	20	21	0	0	62
**	11:24:03	11:24:58	0:00:55	-	-	4	5	0	0	63
**	11:29:25	11:29:35	0:00:10	-	-	0	0	0	0	64
	11:30:02	11:31:30	0:01:28	Westbound	Freight	3	5	0	0	65
	11:32:15	-	-	Eastbound	Freight	-	-	-	-	66
*	-	11:37:19	0:05:04	Westbound	Metrolink	28	23	0	0	67
	11:41:05	11:42:57	0:01:52	Westbound	Freight	13	6	0	0	68
**	11:51:25	11:51:35	0:00:10	-	-	4	1	0	0	69
**	11:55:12	11:55:29	0:00:17	-	-	2	1	0	0	70
	11:56:47	11:59:52	0:03:05	Eastbound	Freight	18	15	0	0	71
	12:10:49	-	-	Westbound	Freight	-	-	-	-	72
*	-	12:15:05	0:04:16	Eastbound	Freight	25	19	0	0	73
	12:27:06	12:30:01	0:02:55	Westbound	Freight	20	15	0	0	74
	12:53:24	12:57:35	0:04:11	Eastbound	Freight	25	24	0	0	75
	13:40:23	13:43:56	0:03:33	Eastbound	Freight	22	21	1	0	76
	13:48:44	13:51:52	0:03:08	Eastbound	Freight	29	26	0	0	77
	14:11:15	14:14:13	0:02:58	Westbound	Freight	25	23	0	0	78
	14:34:38	14:38:10	0:03:32	Eastbound	Freight	37	32	0	0	79
	14:39:17	14:41:37	0:02:20	Westbound	Freight	33	28	0	0	80
	15:04:29	15:07:55	0:03:26	Eastbound	Freight	29	24	1	0	81
	15:26:26	15:29:41	0:03:15	Eastbound	Freight	32	28	1	0	82
	15:36:33	-	-	Eastbound	Freight	-	-	-	-	83
*	-	15:47:04	0:10:31	Westbound	Freight	53	55	0	3	84
	15:54:03	15:59:41	0:05:38	Eastbound	Freight	37	40	0	3	85
	16:05:43	-	-	Westbound	Freight	-	-	-	-	86
*	-	16:14:47	0:09:04	Eastbound	Freight	33	43	0	1	87
	17:03:10	17:06:17	0:03:07	Westbound	Freight	29	23	0	0	88
	17:20:58	17:21:48	0:00:50	Eastbound	Metrolink	10	12	0	0	89
	18:03:18	18:06:50	0:03:32	Westbound	Freight	24	18	0	0	90
	18:10:29	18:11:08	0:00:39	Eastbound	Metrolink	8	5	0	0	91
	18:35:05	18:38:40	0:03:35	Eastbound	Passenger	25	17	0	0	92
	18:43:10	18:43:54	0:00:44	Eastbound	Metrolink	5	2	0	0	93
	18:56:30	19:01:35	0:05:05	Eastbound	Freight	15	29	0	0	94
	19:00:31	19:02:13	0:01:42	Eastbound	Freight	4	10	0	0	95
	19:06:34	19:09:41	0:03:07	Eastbound	Freight	28	13	0	2	96
	19:33:45	19:37:59	0:04:14	Eastbound	Freight	16	16	0	0	97
	19:45:50	19:47:45	0:01:55	Westbound	Freight	11	13	1	1	98
	19:58:02	19:58:45	0:00:43	Westbound	Freight	4	4	0	0	99
	20:15:32	20:17:11	0:01:39	Eastbound	Passenger	7	7	0	0	100
	20:18:22	20:28:29	0:10:07	Eastbound	Freight	29	18	0	1	101
	20:33:02	20:40:50	0:07:48	Eastbound	Freight	29	21	0	0	102
	20:44:20	20:47:26	0:03:06	Eastbound	Freight	13	25	0	0	103
	20:55:30	-	-	Eastbound	Freight	-	-	-	-	104
*	-	21:32:40	0:37:10	Westbound	Freight	78	117	1	2	105
	21:48:16	21:51:18	0:03:02	Eastbound	Freight	8	6	0	0	106
	22:08:37	22:11:57	0:03:20	Eastbound	Freight	6	9	0	0	107
	22:19:55	22:23:05	0:03:10	Westbound	Freight	12	6	0	0	108
	22:57:58	23:01:45	0:03:47	Eastbound	Freight	3	3	0	0	109

* indicates two trains passing at the same time

**indicates gates when down with no train passing through

Iowa Avenue @ BNSF Crossing

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
23:13:50	23:16:24	0:02:34	Westbound	Freight	2	2	0	0	110
23:47:11	23:50:10	0:02:59	Westbound	Freight	3	3	0	0	111
Total Blocking Delay:		5:59:39	Hours						
		360 Minutes		Total	1024	1000			
				Average	19.0	18.5			
	Delays = 111								

* indicates two trains passing at the same time
**indicates gates when down with no train passing through

City of Riverside
Train Blocking Delay Study

Madison Avenue @ BNSF Crossing

Date: 9/11/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
	0:06:38	0:08:52	0:02:14	Westbound	Freight	2	3	0	0	1
	0:19:09	0:22:12	0:03:03	Eastbound	Freight	1	1	0	0	2
	0:44:57	0:46:31	0:01:34	Eastbound	Freight	2	5	0	0	3
	1:12:54	1:15:28	0:02:34	Westbound	Freight	1	1	0	0	4
	1:41:22	1:43:44	0:02:22	Eastbound	Freight	0	0	0	0	5
	1:53:31	1:54:55	0:01:24	Eastbound	Freight	1	0	0	0	6
	1:56:53	1:59:57	0:03:04	Eastbound	Freight	0	1	0	0	7
	2:14:24	2:16:01	0:01:37	Eastbound	Freight	0	1	0	0	8
	2:28:57	2:30:05	0:01:08	Westbound	Passenger	1	0	0	0	9
	2:40:41	2:41:53	0:01:12	Westbound	Freight	1	0	0	0	10
	3:24:48	3:27:19	0:02:31	Eastbound	Freight	1	0	0	0	11
	3:30:14	3:31:52	0:01:38	Westbound	Freight	2	0	0	0	12
	4:08:38	4:10:39	0:02:01	Westbound	Freight	0	1	0	0	13
	4:53:46	4:56:26	0:02:40	Westbound	Freight	4	3	0	0	14
	5:03:37	5:06:33	0:02:56	Eastbound	Freight	2	2	0	0	15
	5:14:41	5:15:49	0:01:08	Westbound	Metrolink	0	0	0	0	16
	5:33:10	5:34:17	0:01:07	Westbound	Metrolink	6	2	0	0	17
	5:44:25	5:45:31	0:01:06	Westbound	Metrolink	3	3	0	0	18
	5:55:29	5:56:38	0:01:09	Westbound	Passenger	4	4	0	0	19
	6:19:50	6:21:03	0:01:13	Westbound	Metrolink	5	1	0	0	20
	6:33:13	6:33:55	0:00:42	Westbound	Metrolink	4	0	0	0	21
	6:46:04	6:49:33	0:03:29	Westbound	Freight	12	18	0	2	22
	6:56:57	6:57:42	0:00:45	Eastbound	Metrolink	0	3	1	0	23
	6:59:31	7:01:57	0:02:26	Westbound	Freight	7	10	1	0	24
	7:10:30	7:11:30	0:01:00	Eastbound	Metrolink	5	6	3	5	25
	7:22:54	7:25:13	0:02:19	Eastbound	Freight	29	10	1	10	26
	7:27:37	7:28:50	0:01:13	Westbound	Freight	15	8	4	0	27
	7:34:45	7:35:18	0:00:33	Westbound	Metrolink	9	7	1	0	28
	7:43:37	7:45:21	0:01:44	Westbound	Freight	28	9	5	2	29
	7:52:55	7:54:31	0:01:36	Westbound	Freight	19	8	2	3	30
	8:29:25	8:29:57	0:00:32	Eastbound	Metrolink	5	6	2	0	31
	9:15:35	-	-	Westbound	Freight	-	-	-	-	32
*	-	9:19:25	0:03:50	Eastbound	Metrolink	33	16	0	0	33
	9:23:54	9:24:45	0:00:51	Eastbound	Metrolink	6	4	0	0	34
	9:32:59	9:35:40	0:02:41	Westbound	Freight	6	13	1	0	35
	10:04:16	10:07:47	0:03:31	Eastbound	Freight	26	16	0	1	36
	10:17:59	10:19:01	0:01:02	Eastbound	Metrolink	12	7	0	0	37
	10:50:36	10:53:56	0:03:20	Westbound	Freight	20	17	0	2	38
	10:58:26	10:59:20	0:00:54	Westbound	Freight	5	8	0	0	39
	10:59:40	-	-	Eastbound	Freight	-	-	-	-	40
*	-	11:03:54	0:04:14	Westbound	Freight	22	20	0	1	41
	11:46:36	11:47:24	0:00:48	Westbound	Metrolink	3	5	1	0	42
	12:13:26	12:18:12	0:04:46	Eastbound	Freight	26	35	0	1	43
**	12:18:40	12:18:53	0:00:13			0	0	0	0	44
	12:28:56	12:32:36	0:03:40	Westbound	Freight	24	26	0	1	45
	12:29:42	12:32:27	0:02:45	Westbound	Freight	4	8	0	2	46
	13:00:41	13:03:55	0:03:14	Westbound	Freight	21	16	2	0	47
	13:15:32	13:16:46	0:01:14	Westbound	Metrolink	4	8	0	1	48
	13:19:38	13:22:59	0:03:21	Eastbound	Freight	13	21	1	0	49
**	13:23:27	13:23:35	0:00:08			3	4	0	0	50
	13:38:40	13:41:11	0:02:31	Westbound	Freight	22	12	2	0	51

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

Madison Avenue @ BNSF Crossing

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
14:09:53	14:10:48	0:00:55	Eastbound	Metrolink	2	2	1	0	52
14:24:55	14:28:45	0:03:50	Westbound	Metrolink	7	5	0	0	53
14:35:49	14:38:05	0:02:16	Westbound	Freight	21	9	0	0	54
15:07:46	15:08:34	0:00:48	Eastbound	Metrolink	8	13	0	0	55
15:14:51	15:16:10	0:01:19	Eastbound	Freight	8	7	0	2	56
15:30:14	16:30:59	1:00:45	Westbound	Metrolink	3	6	0	0	57
15:58:40	-	-	Eastbound	Freight	-	-	-	-	58
* -	16:01:35	0:02:55	Eastbound	Metrolink	19	18	3	3	59
16:49:48	16:53:16	0:03:28	Eastbound	Freight	21	24	4	1	60
17:14:04	17:14:55	0:00:51	Eastbound	Metrolink	6	8	0	2	61
17:15:35	17:17:24	0:01:49	Eastbound	Freight	14	17	1	0	62
17:22:21	17:25:35	0:03:14	Eastbound	Freight	25	26	0	0	63
17:37:19	17:38:04	0:00:45	Eastbound	Metrolink	6	7	0	1	64
17:46:00	17:48:58	0:02:58	Eastbound	Freight	19	24	0	1	65
17:52:27	17:53:12	0:00:45	Westbound	Metrolink	5	9	0	0	66
18:00:11	18:00:59	0:00:48	Eastbound	Metrolink	9	10	0	0	67
18:16:42	18:19:05	0:02:23	Westbound	Freight	14	21	0	1	68
18:35:20	18:36:03	0:00:43	Eastbound	Metrolink	4	7	0	0	69
18:43:53	18:44:42	0:00:49	Eastbound	Metrolink	2	1	0	0	70
18:54:46	18:58:45	0:03:59	Eastbound	Freight	25	33	2	1	71
19:05:30	19:09:47	0:04:17	Westbound	Freight	18	27	0	1	72
19:38:09	19:39:22	0:01:13	Eastbound	Metrolink	15	22	0	0	73
19:54:07	19:55:09	0:01:02	Westbound	Passenger	9	9	0	0	74
20:28:44	20:32:22	0:03:38	Westbound	Freight	8	15	0	1	75
20:49:10	20:52:01	0:02:51	Eastbound	Freight	6	14	0	1	76
21:25:01	21:27:32	0:02:31	Westbound	Freight	10	14	0	0	77
21:39:28	21:41:30	0:02:02	Eastbound	Freight	7	7	0	0	78
22:22:18	22:25:39	0:03:21	Eastbound	Freight	6	7	0	0	79
22:29:00	22:31:27	0:02:27	Eastbound	Freight	4	5	0	1	80
22:45:20	22:48:57	0:03:37	Eastbound	Freight	4	7	0	0	81
23:51:09	23:53:38	0:02:29	Westbound	Freight	6	4	0	0	82
Total Blocking Delay:		3:41:51	hours						
		222	minutes						
				Total	730	727			
				Average	9.2	9.2			
	Delays = 82								

* indicates two trains passing at the same time

**indicates gates when down with no train passing through

City of Riverside
Train Blocking Delay Study
Magnolia Avenue @ Union Pacific Crossing

Date: 9/13/2007 Start Time: 00:00:00

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound
1:51:15	1:54:11	0:02:56	Eastbound	Freight	3	1	0	0
2:06:09	2:09:40	0:03:31	Eastbound	Freight	0	0	0	0
2:19:25	2:24:39	0:05:14	Eastbound	Freight	0	4	0	0
3:07:50	3:12:18	0:04:28	Eastbound	Freight	0	0	0	0
3:56:00	3:58:45	0:02:45	Eastbound	Freight	0	0	0	0
4:45:30	4:46:19	0:00:49	Westbound	Metrolink	1	1	0	0
4:50:09	5:02:15	0:12:06	Eastbound	Freight	2	3	0	1
5:20:00	5:24:43	0:04:43	Eastbound	Freight	0	3	0	0
5:45:42	5:46:40	0:00:58	Westbound	Metrolink	0	1	0	0
6:08:21	6:12:01	0:03:40	Eastbound	Freight	0	7	0	0
6:19:05	6:20:12	0:01:07	Westbound	Metrolink	1	2	0	0
6:53:55	6:54:43	0:00:48	Westbound	Metrolink	1	3	0	0
6:56:32	7:01:20	0:04:48	Eastbound	Freight	10	13	0	0
7:36:30	7:40:17	0:03:47	Eastbound	Freight	8	16	0	0
8:18:30	8:19:43	0:01:13	Westbound	Metrolink	2	6	0	0
8:47:13	8:53:42	0:06:29	Eastbound	Freight	12	21	1	0
9:27:28	9:30:32	0:03:04	Eastbound	Freight	8	12	1	0
10:01:16	10:04:41	0:03:25	Eastbound	Freight	17	24	0	1
10:28:25	10:30:29	0:02:04	Westbound	UP Truck	22	14	0	2
11:22:24	11:27:03	0:04:39	Eastbound	Freight	35	42	1	3
13:01:08	13:04:59	0:03:51	Eastbound	Freight	32	59	1	0
13:54:56	13:57:47	0:02:51	Eastbound	Freight	34	26	0	1
14:28:36	14:31:42	0:03:06	Eastbound	Freight	39	31	0	0
14:36:27	14:37:20	0:00:53	Eastbound	Metrolink	13	9	0	0
15:11:31	15:12:15	0:00:44	Westbound	Metrolink	12	14	0	0
15:37:15	15:42:56	0:05:41	Eastbound	Freight	41	38	3	1
16:50:31	16:54:45	0:04:14	Eastbound	Freight	38	35	2	1
18:16:14	18:16:50	0:00:36	Eastbound	Metrolink	6	3	0	0
18:38:19	18:39:21	0:01:02	Eastbound	Metrolink	5	3	0	0
19:13:14	19:14:16	0:01:02	Westbound	Metrolink	8	3	0	0
19:43:02	19:43:43	0:00:41	Eastbound	Metrolink	0	1	2	0
19:57:15	19:59:48	0:02:33	Eastbound	Freight	6	22	1	0
20:20:41	20:22:32	0:01:51	Eastbound	Freight	4	14	0	0
20:54:55	21:00:28	0:05:33	Eastbound	Freight	12	22	0	0
21:39:23	21:43:02	0:03:39	Eastbound	Freight	2	19	0	1
22:34:28	22:37:22	0:02:54	Eastbound	Freight	0	5	0	0
22:47:10	22:51:29	0:04:19	Eastbound	Freight	2	5	0	0
23:38:26	23:41:25	0:02:59	Eastbound	Freight	6	4	0	0
23:50:58	0:06:30	0:15:32	Eastbound	Freight	3	9	1	0
Total Blocking Delay:		2:16:35	hours					
		137	minutes	Total	385	495		
				Average	9.9	12.7		
	Delays = 39							

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

City of Riverside
Train Blocking Delay Study

Mary Street @ BNSF Crossing

Date: 8/30/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound
	0:11:07	0:12:34	0:01:27	Westbound	Freight	1	0	0	0
	0:36:14	0:38:25	0:02:11	Eastbound	Freight	1	2	0	0
	0:53:38	0:56:23	0:02:45	Eastbound	Freight	0	1	0	0
	1:12:06	1:14:54	0:02:48	Eastbound	Freight	0	0	0	0
	1:48:15	1:51:18	0:03:03	Westbound	Freight	0	4	2	0
	2:05:06	2:07:30	0:02:24	Westbound	Freight	0	0	0	0
	2:13:23	-	-	Eastbound	Freight	-	-	-	-
*	-	2:15:50	0:02:27	Westbound	Metrolink	10	8	0	0
	2:38:17	-	-	Eastbound	Freight	-	-	-	-
*	-	2:42:13	0:03:56	Westbound	Freight	0	0	0	0
	3:03:13	3:06:11	0:02:58	Westbound	Freight	0	0	0	0
	3:40:08	3:42:46	0:02:38	Eastbound	Freight	0	0	0	0
	4:29:13	4:30:35	0:01:22	Westbound	Freight	0	0	0	0
	5:14:42	5:17:23	0:02:41	Eastbound	Freight	3	0	0	0
	5:17:39	5:18:38	0:00:59	Westbound	Metrolink	3	0	1	0
	5:28:30	5:31:14	0:02:44	Eastbound	Freight	8	2	0	0
	5:34:08	5:35:29	0:01:21	Westbound	Metrolink	1	1	0	0
	5:46:36	5:47:45	0:01:09	Westbound	Metrolink	5	2	0	0
	5:58:40	6:00:35	0:01:55	Westbound	Freight	0	8	0	0
	6:07:35	6:10:30	0:02:55	Westbound	Freight	3	9	0	0
	6:24:25	6:25:30	0:01:05	Westbound	Metrolink	1	5	0	0
	6:39:25	6:40:27	0:01:02	Westbound	Metrolink	1	15	0	0
	6:59:33	7:00:06	0:00:33	Eastbound	Metrolink	1	4	0	0
	7:06:15	7:07:18	0:01:03	Westbound	Passenger	3	12	0	0
	7:29:43	7:30:40	0:00:57	Westbound	Metrolink	2	17	0	0
	7:39:00	-	-	Westbound	Freight	-	-	-	-
*	-	7:40:20	0:01:20	Eastbound	Metrolink	18	52	0	0
	8:07:14	8:09:25	0:02:11	Westbound	Freight	8	20	0	0
	9:05:18	9:08:14	0:02:56	Westbound	Freight	11	22	0	0
	9:11:30	9:14:30	0:03:00	Eastbound	Freight	8	17	0	0
	9:22:15	9:22:44	0:00:29	Eastbound	Metrolink	2	6	0	0
	9:56:02	9:59:59	0:03:57	Westbound	Freight	3	12	0	0
	10:21:56	10:22:59	0:01:03	Eastbound	Metrolink	3	3	0	0
	10:41:54	10:44:39	0:02:45	Eastbound	Freight	7	6	0	0
	10:53:33	10:54:32	0:00:59	Westbound	Metrolink	9	8	0	0
	11:46:40	11:47:44	0:01:04	Westbound	Metrolink	8	6	0	0
	12:18:19	12:21:19	0:03:00	Westbound	Freight	17	12	0	0
	12:27:42	12:28:41	0:00:59	Eastbound	Metrolink	5	3	0	0
	12:42:21	12:45:33	0:03:12	Eastbound	Freight	19	17	0	0
	12:53:28	12:56:20	0:02:52	Westbound	Freight	24	15	0	0
	13:13:40	13:14:56	0:01:16	Westbound	Metrolink	7	9	0	0
	13:23:57	13:26:07	0:02:10	Westbound	Freight	17	8	0	0
	14:04:34	14:05:19	0:00:45	Eastbound	Metrolink	1	4	0	0
	14:29:50	14:30:55	0:01:05	Westbound	Metrolink	6	10	0	1
	14:36:19	14:39:52	0:03:33	Eastbound	Freight	20	17	0	0
	15:05:36	15:06:30	0:00:54	Eastbound	Metrolink	5	8	0	0
	15:16:19	15:19:04	0:02:45	Eastbound	Freight	19	19	0	2
	15:28:59	-	-	Eastbound	Freight	-	-	-	-
*	-	15:31:45	0:02:46	Westbound	Metrolink	12	15	1	0
	15:40:34	15:44:07	0:03:33	Eastbound	Freight	16	18	0	0
	16:12:04	-	-	Westbound	Freight	-	-	-	-

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

Mary Street @ BNSF Crossing

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
*	-	16:15:08	0:03:04	Eastbound	Freight	18	17	0	0	52
	16:25:19	-	-	Eastbound	Freight	-	-	-	-	53
*	-	16:28:27	0:03:08	Westbound	Freight	17	16	0	0	54
	16:47:56	16:49:58	0:02:02	Westbound	Freight	16	20	0	0	55
	16:52:28	16:54:55	0:02:27	Eastbound	Freight	19	17	0	0	56
	17:06:10	17:08:54	0:02:44	Westbound	Freight	7	18	0	0	57
	17:10:37	17:12:35	0:01:58	Eastbound	Freight	12	21	0	0	58
	17:33:17	17:34:27	0:01:10	Eastbound	Metrolink	11	4	0	0	59
	17:55:35	17:56:36	0:01:01	Westbound	Metrolink	8	8	0	0	60
	18:01:28	18:02:11	0:00:43	Eastbound	Metrolink	4	6	0	0	61
	18:14:09	18:16:27	0:02:18	Westbound	Freight	12	14	0	0	62
	18:23:54	18:26:14	0:02:20	Westbound	Freight	6	12	0	0	63
	18:38:33	18:39:16	0:00:43	Eastbound	Metrolink	7	3	0	0	64
	18:47:16	18:48:02	0:00:46	Eastbound	Metrolink	4	3	0	0	65
	18:48:43	18:51:35	0:02:52	Westbound	Freight	9	13	0	0	66
	19:01:23	19:04:40	0:03:17	Westbound	Freight	14	14	0	1	67
	19:37:09	-	-	Eastbound	Freight	-	-	-	-	68
*	-	19:40:10	0:03:01	Westbound	Freight	5	18	0	1	69
	19:46:42	19:47:20	0:00:38	Eastbound	Metrolink	2	1	0	0	70
	19:58:30	20:01:32	0:03:02	Eastbound	Freight	7	19	0	0	71
	20:05:37	20:06:43	0:01:06	Eastbound	Passenger	3	3	0	0	72
	21:09:52	21:11:43	0:01:51	Westbound	Freight	4	6	0	0	73
	21:44:20	21:47:27	0:03:07	Westbound	Freight	2	10	0	0	74
	21:54:09	21:56:23	0:02:14	Eastbound	Freight	1	7	0	0	75
	22:14:28	22:18:05	0:03:37	Eastbound	Freight	0	3	0	2	76
	22:56:11	22:59:01	0:02:50	Eastbound	Freight	5	3	1	0	77
	23:08:06	23:12:08	0:04:02	Eastbound	Freight	1	6	0	0	78
	23:22:38	23:24:53	0:02:15	Westbound	Freight	1	3	0	0	79
	23:35:37	23:39:26	0:03:49	Eastbound	Freight	2	2	0	0	80
	23:46:49	-	-	Westbound	Freight	-	-	-	-	81
*	-	23:54:16	0:07:27	Eastbound	Freight	2	10	0	0	82
	Total Blocking Delay:		2:44:29	hours						
			164	minutes	Total	487	674			
					Average	6.6	9.1			
		Delays = 82								

* indicates two trains passing at the same time

**indicates gates when down with no train passing through

City of Riverside
Train Blocking Delay Study

Palm Avenue @ BNSF Crossing

Date: 9/18/2007 Start Time: 00:00:00

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound
0:00:30	0:03:07	0:02:37	Eastbound	Freight	0	3	0	0
1:31:57	1:36:01	0:04:04	Eastbound	Freight	0	0	0	0
2:58:24	3:00:21	0:01:57	Eastbound	Freight	0	1	0	0
3:19:32	3:22:17	0:02:45	Westbound	Metrolink	0	0	0	0
4:48:07	4:48:42	0:00:35	Eastbound	Freight	1	0	0	0
5:22:26	5:25:57	0:03:31	Westbound	Metrolink	1	6	0	0
5:45:32	5:46:09	0:00:37	Westbound	Metrolink	1	1	0	0
6:19:27	6:20:02	0:00:35	Eastbound	Freight	4	1	0	0
6:20:55	6:23:48	0:02:53	Westbound	Metrolink	1	5	0	0
6:54:20	6:55:00	0:00:40	Eastbound	Freight	12	3	0	0
7:33:01	7:38:13	0:05:12	Westbound	Metrolink	1	23	0	0
8:18:40	8:19:11	0:00:31	Eastbound	Freight	24	3	0	0
8:45:01	8:50:50	0:05:49	Westbound	Freight	0	13	0	2
11:15:02	11:19:35	0:04:33	Eastbound	Freight	10	16	1	0
12:13:54	12:18:09	0:04:15	Eastbound	Freight	20	12	0	0
13:09:30	13:13:50	0:04:20	Eastbound	Freight	16	18	0	0
13:25:25	13:29:29	0:04:04	Eastbound	Freight	26	10	0	0
14:34:21	14:34:54	0:00:33	Eastbound	Metrolink	2	0	0	0
15:11:36	15:12:23	0:00:47	Westbound	Metrolink	5	4	0	0
15:45:11	15:48:52	0:03:41	Eastbound	Freight	32	36	0	0
16:26:42	16:29:52	0:03:10	Eastbound	Freight	29	22	4	0
16:46:51	16:50:42	0:03:51	Eastbound	Freight	31	29	0	0
17:30:22	17:30:53	0:00:31	Eastbound	Metrolink	8	6	0	0
18:15:47	18:16:22	0:00:35	Eastbound	Metrolink	4	0	0	0
18:26:50	18:28:54	0:02:04	Westbound	Freight	3	7	0	0
18:41:16	18:41:54	0:00:38	Eastbound	Metrolink	2	2	0	0
18:53:52	18:56:13	0:02:21	Westbound	Freight	9	12	0	0
19:17:08	19:17:40	0:00:32	Eastbound	Metrolink	2	0	0	0
19:21:39	19:23:33	0:01:54	Eastbound	Freight	6	10	0	0
19:46:55	19:47:27	0:00:32	Eastbound	Metrolink	1	0	0	0
20:03:20	20:07:15	0:03:55	Eastbound	Freight	9	8	3	0
20:46:02	20:50:32	0:04:30	Eastbound	Freight	9	9	0	0
21:58:40	22:01:05	0:02:25	Eastbound	Freight	5	3	0	0
Total Blocking Delay:		1:20:57	hours					
		81	minutes					
				Total	274	263		
	Delays = 33			Average	8.3	8.0		

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

City of Riverside
Train Blocking Delay Study

Pierce Street @ BNSF Crossing

Date: 9/13/2007 Start Time: 00:00:00

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
0:10:40	-	-	Eastbound	Freight	-	-	-	-	1
* -	0:14:02	0:03:22	Westbound	Freight	0	3	0	0	2
0:35:32	0:37:38	0:02:06	Eastbound	Freight	1	2	0	0	3
1:18:07	1:20:23	0:02:16	Westbound	Freight	0	0	0	0	4
1:31:50	1:34:41	0:02:51	Eastbound	Freight	1	1	0	0	5
1:47:55	1:50:47	0:02:52	Eastbound	Freight	1	0	0	0	6
2:34:01	2:36:19	0:02:18	Eastbound	Freight	4	0	0	0	7
3:15:49	3:17:54	0:02:05	Eastbound	Freight	2	1	0	0	8
3:23:45	3:24:53	0:01:08	Westbound	Freight	1	0	0	0	9
3:36:20	3:37:45	0:01:25	Westbound	Freight	2	1	0	0	10
4:14:26	4:15:57	0:01:31	Westbound	Freight	5	2	0	0	11
4:56:01	4:57:36	0:01:35	Eastbound	Freight	8	2	0	0	12
5:00:10	5:01:09	0:00:59	Westbound	Freight	1	0	0	0	13
5:21:19	5:22:08	0:00:49	Westbound	Metrolink	0	0	0	0	14
5:40:03	5:40:50	0:00:47	Westbound	Metrolink	3	0	0	0	15
5:51:44	5:52:48	0:01:04	Westbound	Metrolink	2	0	0	0	16
5:59:55	6:00:53	0:00:58	Westbound	Passenger	3	1	0	0	17
6:26:29	6:27:20	0:00:51	Westbound	Metrolink	2	1	0	0	18
6:39:45	6:40:38	0:00:53	Westbound	Metrolink	4	0	0	0	19
6:52:54	6:55:36	0:02:42	Westbound	Freight	18	7	1	0	20
7:05:49	7:07:23	0:01:34	Westbound	Freight	13	1	0	0	21
7:17:14	7:19:39	0:02:25	Westbound	Freight	22	16	0	0	22
7:27:17	7:28:09	0:00:52	Eastbound	Metrolink	14	7	0	0	23
7:37:08	7:38:03	0:00:55	Westbound	Metrolink	15	1	0	0	24
8:01:26	8:03:23	0:01:57	Westbound	Freight	20	14	0	0	25
8:11:03	8:11:35	0:00:32	Westbound	Passenger	7	4	0	0	26
8:45:10	8:47:23	0:02:13	Eastbound	Freight	7	7	0	3	27
9:12:25	9:13:11	0:00:46	Eastbound	Metrolink	4	4	1	0	28
9:14:46	9:17:01	0:02:15	Westbound	Freight	11	4	0	0	29
10:04:56	10:05:40	0:00:44	Eastbound	Metrolink	2	0	0	0	30
10:31:56	10:34:31	0:02:35	Eastbound	Freight	8	11	1	0	31
11:01:41	11:02:20	0:00:39	Westbound	Metrolink	4	0	0	0	32
11:11:46	11:14:20	0:02:34	Eastbound	Freight	8	6	0	0	33
11:54:07	11:54:54	0:00:47	Westbound	Metrolink	5	2	0	0	34
12:05:58	12:07:55	0:01:57	Westbound	Freight	13	12	0	0	35
12:21:37	12:22:25	0:00:48	Eastbound	Metrolink	5	5	0	0	36
12:32:06	12:34:50	0:02:44	Eastbound	Freight	13	10	0	0	37
13:23:03	13:23:41	0:00:38	Westbound	Metrolink	5	7	0	0	38
13:30:42	13:33:39	0:02:57	Westbound	Freight	6	11	0	0	39
13:36:42	13:39:12	0:02:30	Eastbound	Freight	14	10	0	0	40
13:39:47	13:42:51	0:03:04	Westbound	Freight	12	11	1	1	41
13:51:04	13:51:41	0:00:37	Eastbound	Metrolink	7	3	0	0	42
14:04:39	14:07:52	0:03:13	Eastbound	Freight	16	19	0	0	43
14:33:54	14:34:38	0:00:44	Westbound	Metrolink	8	3	0	0	44
14:53:06	14:53:37	0:00:31	Eastbound	Metrolink	4	6	0	0	45
15:25:31	15:26:20	0:00:49	Eastbound	Freight	4	8	0	0	46
15:36:22	15:37:00	0:00:38	Westbound	Metrolink	7	5	0	0	47
15:45:50	15:48:09	0:02:19	Westbound	Freight	9	12	0	0	48
16:01:54	16:04:31	0:02:37	Westbound	Freight	20	22	0	0	49
16:28:58	16:30:16	0:01:18	Westbound	Freight	6	12	0	0	50
17:03:12	17:06:55	0:03:43	Eastbound	Metrolink	3	5	0	0	51

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

Pierce Street @ BNSF Crossing

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
17:29:50	17:30:32	0:00:42	Eastbound	Metrolink	8	2	0	0	52
17:50:22	17:51:08	0:00:46	Eastbound	Metrolink	5	1	0	0	53
18:01:00	18:01:49	0:00:49	Westbound	Metrolink	1	0	3	0	54
18:21:33	18:22:16	0:00:43	Eastbound	Metrolink	3	3	0	0	55
18:29:38	18:30:20	0:00:42	Eastbound	Metrolink	2	5	0	0	56
18:41:05	18:42:46	0:01:41	Eastbound	Freight	13	9	0	0	57
18:49:15	18:50:26	0:01:11	Westbound	Freight	6	5	0	0	58
19:02:59	19:04:35	0:01:36	Westbound	Freight	9	6	1	0	59
19:12:16	19:16:57	0:04:41	Westbound	Freight	20	15	0	0	60
19:28:48	19:29:41	0:00:53	Eastbound	Metrolink	1	3	0	0	61
19:46:20	19:47:16	0:00:56	Eastbound	Passenger	1	4	0	2	62
20:36:08	20:39:35	0:03:27	Westbound	Freight	6	4	0	0	63
20:40:16	20:43:00	0:06:52	Eastbound	Freight	3	8	0	1	64
21:30:52	-	-	Eastbound	Freight	-	-	-	-	65
* -	21:33:14	0:02:22	Westbound	Freight	4	5	0	0	66
22:13:32	22:16:13	0:02:41	Eastbound	Freight	3	6	0	0	67
22:17:47	22:20:05	0:02:18	Eastbound	Freight	3	3	0	0	68
22:36:39	22:39:15	0:02:36	Eastbound	Freight	0	3	0	0	69
23:56:58	23:58:59	0:02:01	Westbound	Freight	0	1	0	0	70
Total Blocking Delay:		2:01:24	hours						
		121	minutes						
				Total	438	342			
	Delays = 70			Average	6.4	5.0			

* indicates two trains passing at the same time

**indicates gates when down with no train passing through

City of Riverside
Train Blocking Delay Study

Riverside Avenue @ Union Pacific Crossing

Date: 9/18/2007 Start Time: 00:00:00

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound
0:53:18	0:58:32	0:05:14	Eastbound	Freight	0	1	0	0
2:37:07	2:41:00	0:03:53	Eastbound	Freight	1	0	0	0
3:23:56	3:28:05	0:04:09	Eastbound	Freight	1	0	0	0
4:32:08	4:35:03	0:02:55	Eastbound	Freight	2	0	0	0
4:44:54	4:45:42	0:00:48	Westbound	Metrolink	1	1	0	0
5:12:25	5:15:52	0:03:27	Eastbound	Freight	4	2	0	0
5:45:50	5:46:41	0:00:51	Westbound	Metrolink	3	1	0	0
5:50:27	5:53:31	0:03:04	Eastbound	Freight	5	1	0	0
6:17:51	6:18:40	0:00:49	Westbound	Metrolink	0	1	0	0
6:53:40	6:54:33	0:00:53	Westbound	Metrolink	3	6	0	0
7:41:07	7:44:14	0:03:07	Eastbound	Freight	17	21	0	0
7:54:11	8:07:55	0:13:44	Eastbound	Freight	15	23	0	0
8:18:14	8:19:01	0:00:47	Westbound	Metrolink	2	7	0	0
8:42:29	8:46:41	0:04:12	Eastbound	Freight	25	27	1	5
11:16:59	11:25:06	0:08:07	Eastbound	Freight	9	19	0	0
12:15:18	12:20:23	0:05:05	Eastbound	Freight	5	33	2	0
13:11:26	13:18:38	0:07:12	Eastbound	Freight	15	19	0	0
13:27:21	13:32:23	0:05:02	Eastbound	Freight	12	18	0	0
14:35:10	14:36:08	0:00:58	Eastbound	Metrolink	4	5	0	0
15:10:46	15:11:48	0:01:02	Westbound	Metrolink	9	7	6	0
15:44:54	15:52:49	0:07:55	Eastbound	Freight	22	29	2	1
16:28:11	16:33:03	0:04:52	Eastbound	Freight	18	30	0	0
16:48:45	16:54:10	0:05:25	Eastbound	Freight	21	28	0	1
17:31:08	17:32:03	0:00:55	Eastbound	Metrolink	7	15	0	0
18:16:38	18:17:25	0:00:47	Eastbound	Metrolink	6	8	0	0
18:25:09	18:28:15	0:03:06	Westbound	Freight	12	14	0	0
18:42:01	18:43:11	0:01:10	Eastbound	Metrolink	8	5	0	0
18:53:01	18:55:32	0:02:31	Westbound	Freight	17	15	0	0
19:15:47	19:16:39	0:00:52	Eastbound	Metrolink	2	1	0	0
19:24:22	19:25:55	0:01:33	Eastbound	Freight	7	9	0	0
19:46:11	19:47:12	0:01:01	Eastbound	Metrolink	5	5	0	0
19:58:13	20:04:50	0:06:37	Eastbound	Freight	23	11	0	0
20:11:58	20:20:41	0:08:43	Eastbound	Freight	15	8	0	0
20:32:05	20:35:00	0:02:55	Eastbound	Freight	7	10	0	0
21:10:58	21:12:44	0:01:46	Eastbound	Freight	13	2	0	0
21:33:59	21:36:54	0:02:55	Eastbound	Freight	7	3	0	0
23:04:33	23:08:28	0:03:55	Eastbound	Freight	3	0	0	0
Total Blocking Delay:		2:12:17	hours					
		132	minutes					
				Total	326	385		
	Delays = 37			Average	8.8	10.4		

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

City of Riverside
Train Blocking Delay Study

Streeter Avenue @ Union Pacific Crossing

Date: 9/19/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
	0:48:28	0:50:50	0:02:22	Eastbound	Freight	1	3	0	0	1
	2:13:20	2:15:41	0:02:21	Eastbound	Freight	1	2	0	0	2
	2:39:03	2:46:34	0:07:31	Eastbound	Freight	5	2	0	0	3
	4:42:07	4:44:12	0:02:05	Eastbound	Freight	2	0	0	0	4
	4:47:35	4:48:17	0:00:42	Westbound	Metrolink	0	2	0	0	5
	5:23:44	5:25:41	0:01:57	Eastbound	Freight	1	0	0	0	6
	5:47:20	6:48:05	1:00:45	Westbound	Metrolink	0	1	0	0	7
	6:19:50	6:20:39	0:00:49	Westbound	Metrolink	2	2	0	0	8
	6:43:15	6:45:23	0:02:08	Eastbound	Freight	12	12	0	2	9
	6:59:45	7:00:37	0:00:52	Westbound	Metrolink	2	3	0	0	10
	7:41:05	7:42:24	0:01:19	Eastbound	Freight	32	25	0	2	11
	8:45:28	-	-	Eastbound	Freight	-	-	-	-	12
*	-	8:48:40	0:03:12	Westbound	Metrolink	24	18	0	0	13
	9:23:30	9:26:43	0:03:13	Eastbound	Freight	5	6	0	1	14
**	9:33:49	9:35:09	0:01:20	-	-	3	5	0	0	15
**	10:47:24	10:48:57	0:01:33	-	-	7	5	0	0	16
	11:13:10	11:15:30	0:02:20	Eastbound	Freight	12	19	4	0	17
	11:45:56	11:49:42	0:03:46	Eastbound	Freight	29	17	1	2	18
	12:53:52	12:55:48	0:01:56	Eastbound	Freight	13	18	0	0	19
	13:21:27	13:24:41	0:03:14	Eastbound	Freight	31	20	7	0	20
**	13:41:01	13:41:56	0:00:55	-	-	11	10	0	1	21
**	14:07:22	14:07:44	0:00:22	-	-	6	2	0	0	22
	14:18:03	14:20:22	0:02:19	Eastbound	Freight	18	25	5	0	23
	14:30:38	14:31:22	0:00:44	Eastbound	Metrolink	8	6	0	0	24
**	14:38:09	14:38:35	0:00:26	-	-	0	1	0	0	25
**	14:39:53	14:40:27	0:00:34	-	-	5	4	0	0	26
	15:12:07	15:12:57	0:00:50	Westbound	Metrolink	11	6	0	0	27
**	15:38:54	15:39:25	0:00:31	-	-	6	12	1	0	28
	16:07:01	16:08:33	0:01:32	Eastbound	Freight	11	11	0	0	29
	16:16:42	16:20:10	0:03:28	Eastbound	Freight	20	15	0	1	30
	17:34:21	17:34:58	0:00:37	Eastbound	Metrolink	4	7	0	0	31
	18:38:07	18:38:42	0:00:35	Eastbound	Metrolink	8	7	0	0	32
	18:46:40	18:49:06	0:02:26	Eastbound	Freight	17	19	0	0	33
	19:15:03	19:15:46	0:00:43	Eastbound	Metrolink	0	4	2	0	34
	19:45:24	19:46:08	0:00:44	Eastbound	Metrolink	2	3	0	0	35
	20:02:13	20:05:13	0:03:00	Eastbound	Freight	15	10	0	0	36
	20:55:07	20:58:16	0:03:09	Eastbound	Freight	9	7	0	0	37
	21:14:44	21:16:47	0:02:03	Eastbound	Freight	10	8	0	0	38
	22:50:46	22:53:42	0:02:56	Eastbound	Freight	6	3	0	0	39
	23:28:10	23:30:39	0:02:29	Eastbound	Freight	5	1	0	0	40
	Total Blocking Delay:		2:13:48	hours						
			134	minutes						
					Total	354	321			
		Delays = 40			Average	9.1	8.2			

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

City of Riverside
Train Blocking Delay Study

Third Street @ BNSF Crossing

Date: 9/13/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Eastbound	# of Cars Westbound	# of Peds Eastbound	# of Peds Westbound	
	0:03:52	0:06:22	0:02:30	Northbound	Freight	2	1	0	0	1
	0:22:47	0:25:09	0:02:22	Northbound	Freight	0	1	0	0	2
	0:29:54	0:32:11	0:02:17	Southbound	Freight	1	1	0	0	3
	0:40:38	0:42:29	0:01:51	Southbound	Freight	1	2	0	0	4
	1:08:38	1:11:27	0:02:49	Northbound	Freight	1	1	0	0	5
	1:14:08	1:16:47	0:02:39	Northbound	Freight	0	2	0	0	6
	1:29:33	1:32:26	0:02:53	Northbound	Freight	1	1	0	0	7
	1:41:50	1:44:38	0:02:48	Northbound	Freight	1	2	0	0	8
	1:50:03	1:53:31	0:03:28	Southbound	Freight	0	1	0	0	9
	1:57:45	2:02:32	0:04:47	Northbound	Freight	2	2	0	0	10
	2:12:17	2:17:01	0:04:44	Northbound	Freight	1	1	0	0	11
	3:15:18	3:16:40	0:01:22	Northbound	Freight	2	2	0	0	12
	3:17:06	3:18:55	0:01:49	Northbound	Freight	0	2	0	0	13
	3:57:50	3:59:20	0:01:30	Southbound	Freight	1	1	0	0	14
	4:08:42	4:10:36	0:01:54	Southbound	Freight	1	2	1	0	15
	4:16:42	4:19:23	0:02:41	Northbound	Freight	1	1	0	0	16
	4:26:05	4:29:57	0:03:52	Northbound	Freight	1	1	0	0	17
	5:18:20	5:21:27	0:03:07	Northbound	Freight	6	6	0	0	18
	5:36:23	5:36:55	0:00:32	Southbound	Metrolink	2	2	0	0	19
	5:41:19	5:43:27	0:02:08	Northbound	Freight	5	5	0	0	20
	5:47:14	5:48:44	0:01:30	Southbound	Freight	0	0	0	0	21
	5:54:32	5:56:56	0:02:24	Northbound	Freight	5	5	0	1	22
	6:09:13	-	-	Northbound	Freight	-	-	-	-	23
*	-	6:12:11	0:02:58	Southbound	Metrolink	2	7	0	0	24
	6:39:43	6:42:34	0:02:51	Southbound	Freight	5	9	0	3	25
	6:54:17	6:56:55	0:02:38	Southbound	Freight	13	13	0	2	26
	7:29:58	7:34:58	0:05:00	Southbound	Freight	26	29	0	0	27
	7:38:59	7:42:03	0:03:04	Southbound	Freight	17	19	0	0	28
	7:49:58	7:54:48	0:04:50	Southbound	Freight	27	31	0	0	29
	7:56:31	7:58:51	0:02:20	Northbound	Freight	10	20	0	0	30
	8:14:17	8:16:12	0:01:55	Southbound	Freight	7	10	0	0	31
	8:52:48	8:55:44	0:02:56	Southbound	Freight	12	19	0	0	32
	9:07:25	-	-	Southbound	Freight	-	-	-	-	33
*	-	9:12:15	0:04:50	Northbound	Freight	21	22	0	0	34
	9:20:19	9:22:48	0:02:29	Northbound	Freight	12	11	1	1	35
	9:28:12	9:31:43	0:03:31	Southbound	Freight	16	13	0	0	36
**	9:32:10	9:33:12	0:01:02	-	-	5	8	0	0	37
	9:46:11	9:49:24	0:03:13	Northbound	Freight	16	14	0	0	38
	10:12:15	10:14:34	0:02:19	Northbound	Freight	17	11	0	0	39
	10:15:15	10:18:04	0:02:49	Northbound	Freight	12	9	0	0	40
	10:29:20	10:29:52	0:00:32	Northbound	Metrolink	2	0	0	0	41
	10:46:27	10:49:23	0:02:56	Southbound	Freight	6	10	0	0	42
	11:09:50	11:12:12	0:02:22	Northbound	Freight	11	16	0	0	43
	11:28:25	11:31:41	0:03:16	Northbound	Freight	15	10	1	0	44
	11:38:01	11:39:41	0:01:40	Southbound	Metrolink	5	2	0	0	45
	12:05:33	12:08:20	0:02:47	Southbound	Freight	18	20	0	0	46
	12:19:26	12:23:06	0:03:40	Southbound	Freight	15	12	0	0	47
	12:25:51	12:28:17	0:02:26	Southbound	Freight	9	11	0	0	48
	12:33:30	12:35:40	0:02:10	Northbound	Freight	16	11	0	0	49
**	12:55:58	12:56:30	0:00:32	-	-	3	2	0	0	50
	12:57:01	12:59:52	0:02:51	Southbound	Freight	15	19	0	0	51

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

Third Street @ BNSF Crossing

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Eastbound	# of Cars Westbound	# of Peds Eastbound	# of Peds Westbound	
13:25:11	13:27:35	0:02:24	Northbound	Freight	10	8	0	0	52
13:35:10	13:37:18	0:02:08	Southbound	Freight	14	16	0	0	53
13:45:29	13:48:03	0:02:34	Northbound	Freight	11	9	0	0	54
14:03:48	14:06:28	0:02:40	Northbound	Freight	10	7	0	0	55
14:25:47	14:29:40	0:03:53	Southbound	Freight	16	14	2	0	56
14:46:45	14:48:48	0:02:03	Northbound	Freight	10	15	1	0	57
15:27:43	15:28:30	0:00:47	Northbound	Passenger	2	5	0	0	58
15:39:18	15:41:26	0:02:08	Northbound	Freight	8	11	0	1	59
15:43:55	15:44:40	0:00:45	Southbound	Passenger	5	8	0	0	60
16:02:43	16:04:46	0:02:03	Northbound	Freight	17	12	0	0	61
16:09:31	16:11:52	0:02:21	Northbound	Freight	10	11	0	0	62
17:01:23	17:03:43	0:02:20	Northbound	Freight	15	23	1	0	63
17:12:03	17:13:18	0:01:15	Southbound	Freight	19	16	0	0	64
17:24:43	17:26:08	0:01:25	Northbound	Metrolink	6	8	0	0	65
17:31:31	17:33:36	0:02:05	Northbound	Freight	13	17	0	0	66
17:57:00	17:59:25	0:02:25	Northbound	Freight	12	13	0	1	67
18:09:07	-	-	Northbound	Freight	-	-	-	-	68
* -	18:10:43	0:01:36	Northbound	Metrolink	19	5	0	0	69
18:11:43	18:14:38	0:02:55	Southbound	Freight	22	19	0	0	70
18:44:38	18:45:28	0:00:50	Northbound	Metrolink	6	5	0	0	71
18:57:50	18:58:52	0:01:02	Northbound	Freight	12	7	0	0	72
19:04:30	19:06:50	0:02:20	Northbound	Freight	10	7	0	0	73
19:31:37	19:33:56	0:02:19	Northbound	Freight	7	7	0	0	74
19:48:41	19:51:22	0:02:41	Southbound	Freight	13	17	2	0	75
20:01:12	20:02:34	0:01:22	Southbound	Freight	3	2	0	0	76
20:12:30	20:13:20	0:00:50	Northbound	Passenger	2	5	0	0	77
20:14:32	20:17:27	0:02:55	Northbound	Freight	13	12	0	0	78
20:29:04	20:33:08	0:04:04	Northbound	Freight	10	5	0	0	79
20:41:42	20:44:06	0:02:24	Northbound	Freight	4	7	0	0	80
20:53:10	20:55:36	0:02:26	Northbound	Freight	8	10	0	0	81
** 21:33:30	21:34:02	0:00:32	-	-	2	1	0	0	82
21:34:30	21:35:45	0:01:15	Southbound	Freight	4	2	0	0	83
21:46:29	21:48:44	0:02:15	Northbound	Freight	3	3	0	0	84
22:06:22	22:07:57	0:01:35	Northbound	Freight	2	1	0	0	85
22:23:33	22:25:29	0:01:56	Southbound	Freight	4	7	0	0	86
22:46:19	22:47:29	0:01:10	Southbound	Freight	1	1	0	0	87
22:55:40	22:57:50	0:02:10	Northbound	Freight	1	3	0	0	88
** 23:16:40	23:17:20	0:00:40	-	-	0	1	0	0	89
23:17:40	23:20:25	0:02:45	Southbound	Freight	3	2	0	0	90
23:51:10	23:53:32	0:02:22	Southbound	Freight	1	1	0	0	91
Total Blocking Delay:		3:27:34	hours						
		208	minutes						
				Total	695	723			
	Delays = 91			Average	7.9	8.2			

* indicates two trains passing at the same time

**indicates gates when down with no train passing through

City of Riverside
Train Blocking Delay Study

Tyler Street @ BNSF Crossing

Date: 9/11/2007 Start Time: 00:00:00

	Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
	0:11:19	0:13:11	0:01:52	Westbound	Freight	1	1	0	1	1
	0:15:20	0:17:28	0:02:08	Eastbound	Freight	0	2	0	0	2
	0:40:03	-	-	Eastbound	Freight	-	-	-	-	3
*	-	0:41:58	0:01:55	Eastbound	Freight	0	2	0	0	4
	1:18:17	1:20:07	0:01:50	Westbound	Freight	0	0	0	0	5
	1:36:15	1:39:09	0:02:54	Eastbound	Freight	1	0	0	0	6
	1:52:12	1:55:08	0:02:56	Eastbound	Freight	1	2	0	0	7
	2:09:45	2:11:03	0:01:18	Eastbound	Freight	0	0	0	0	8
	2:33:20	2:34:29	0:01:09	Westbound	Metrolink	0	0	0	0	9
	3:05:03	3:06:34	0:01:31	Westbound	Freight	0	0	0	0	10
	3:20:08	-	-	Westbound	Freight	-	-	-	-	11
*	-	3:22:43	0:02:35	Eastbound	Freight	0	0	0	0	12
	3:35:41	3:37:01	0:01:20	Westbound	Freight	0	0	0	0	13
	4:13:12	4:15:07	0:01:55	Westbound	Freight	3	2	0	0	14
	5:19:21	5:20:33	0:01:12	Westbound	Metrolink	2	0	1	0	15
	5:38:22	5:38:52	0:00:30	Westbound	Metrolink	5	0	0	0	16
	5:49:04	5:49:49	0:00:45	Westbound	Metrolink	5	1	0	0	17
	6:00:12	6:01:02	0:00:50	Westbound	Passenger	7	1	0	0	18
	6:24:15	6:25:20	0:01:05	Westbound	Metrolink	7	4	0	0	19
	6:37:20	6:38:49	0:01:29	Westbound	Metrolink	11	2	1	0	20
	6:52:21	-	-	Westbound	Freight	-	-	-	-	21
*	-	6:54:35	0:02:14	Eastbound	Metrolink	32	5	0	0	22
	7:05:09	7:06:23	0:01:14	Westbound	Freight	20	1	0	0	23
	7:16:48	7:18:54	0:02:06	Westbound	Freight	37	11	0	1	24
	7:33:04	7:33:32	0:00:28	Eastbound	Metrolink	21	5	0	0	25
	7:35:23	7:36:48	0:01:25	Westbound	Metrolink	27	10	0	0	26
	8:00:29	8:02:48	0:02:19	Westbound	Freight	20	11	1	0	27
	8:10:56	8:11:51	0:00:55	Westbound	Freight	15	6	0	0	28
	8:49:31	8:51:59	0:02:28	Eastbound	Freight	28	9	3	0	29
	9:14:20	9:16:36	0:02:16	Westbound	Freight	19	9	0	0	30
	9:18:46	9:19:40	0:00:54	Eastbound	Metrolink	9	5	0	0	31
	10:10:46	10:11:40	0:00:54	Eastbound	Metrolink	0	5	0	0	32
	10:34:36	10:37:15	0:02:39	Eastbound	Freight	17	14	0	0	33
	10:57:24	10:58:27	0:01:03	Westbound	Metrolink	7	3	0	0	34
	11:14:29	11:17:16	0:02:47	Eastbound	Freight	12	18	0	0	35
	11:51:40	11:52:45	0:01:05	Westbound	Metrolink	11	3	0	0	36
	12:05:12	12:06:20	0:01:08	Westbound	Freight	3	2	0	1	37
	12:27:54	12:28:05	0:00:11	Eastbound	Metrolink	6	8	0	0	38
	12:37:50	12:39:26	0:01:36	Eastbound	Freight	12	18	0	0	39
	13:16:52	13:18:05	0:01:13	Westbound	Freight	9	12	0	0	40
	13:20:25	13:20:41	0:00:16	Westbound	Metrolink	3	4	0	0	41
	13:36:57	13:40:52	0:03:55	Westbound	Freight	12	15	0	0	42
	13:41:25	13:43:20	0:01:55	Eastbound	Freight	10	14	0	0	43
	13:57:35	13:57:49	0:00:14	Eastbound	Metrolink	4	6	0	0	44
	14:10:25	14:12:51	0:02:26	Eastbound	Freight	8	16	0	0	45
	14:32:23	14:32:39	0:00:16	Westbound	Metrolink	2	3	0	1	46
	14:59:45	14:59:58	0:00:13	Eastbound	Metrolink	8	5	0	0	47
	15:30:35	15:30:58	0:00:23	Eastbound	Freight	7	8	0	0	48
	15:35:01	15:35:47	0:00:46	Westbound	Metrolink	12	19	0	3	49
	15:45:51	15:47:20	0:01:29	Westbound	Freight	19	15	0	1	50
	16:02:30	16:03:43	0:01:13	Westbound	Freight	21	19	0	0	51

* indicates two trains passing at the same time.

**indicates gates when down with no train passing through.

Tyler Street @ BNSF Crossing

Gate Down	Gate Up	Elapsed Time	Direction of Train	Type of Train	# of Cars Northbound	# of Cars Southbound	# of Peds Northbound	# of Peds Southbound	
16:28:12	16:29:02	0:00:50	Westbound	Freight	4	16	1	0	52
17:09:52	17:09:59	0:00:07	Eastbound	Metrolink	6	11	0	0	53
17:37:11	17:37:57	0:00:46	Eastbound	Metrolink	15	12	0	0	54
17:57:03	17:57:35	0:00:32	Eastbound	Metrolink	13	16	0	0	55
17:59:23	18:00:00	0:00:37	Westbound	Metrolink	9	14	0	0	56
18:28:54	18:29:17	0:00:23	Eastbound	Metrolink	3	5	0	0	57
18:36:02	18:36:35	0:00:33	Eastbound	Metrolink	13	11	0	0	58
18:46:10	18:47:05	0:00:55	Eastbound	Freight	6	10	0	0	59
18:49:50	18:51:27	0:01:37	Westbound	Freight	8	9	1	1	60
19:02:46	19:03:40	0:00:54	Westbound	Freight	10	13	0	0	61
19:11:41	19:14:22	0:02:41	Westbound	Freight	11	25	1	0	62
19:34:55	19:35:10	0:00:15	Eastbound	Metrolink	5	6	0	0	63
19:50:45	19:51:10	0:00:25	Eastbound	Passenger	5	2	0	0	64
20:35:10	20:37:33	0:02:23	Westbound	Freight	8	18	0	0	65
20:44:03	20:47:17	0:03:14	Eastbound	Freight	7	20	0	0	66
21:30:23	21:32:43	0:02:20	Westbound	Freight	2	5	0	0	67
21:35:20	21:37:13	0:01:53	Eastbound	Freight	6	13	0	0	68
22:18:09	22:20:52	0:02:43	Eastbound	Freight	0	7	0	0	69
22:23:06	22:25:14	0:02:08	Eastbound	Freight	2	2	0	0	70
22:41:41	22:43:04	0:01:23	Eastbound	Freight	1	4	0	0	71
23:56:01	23:58:06	0:02:05	Westbound	Freight	0	1	0	0	72
Total Blocking Delay:		1:39:59	hours						
		100	minutes						
				Total	588	516			
				Average	8.5	7.5			
	Delays = 72								

* indicates two trains passing at the same time
**indicates gates when down with no train passing through

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Dewey Avenue
W/ Streeter Avenue
24 Hour Directional Volume Count

RIDEWST
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	18-Sep-07 Tue	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	22			2	18				
12:15		1	17			2	40				
12:30		3	16			1	25				
12:45		0	15	4	70	0	16	5	99	9	169
01:00		0	23			1	22				
01:15		0	23			0	15				
01:30		0	28			1	24				
01:45		0	18	0	92	0	26	2	87	2	179
02:00		0	19			0	19				
02:15		1	27			2	28				
02:30		0	**41**			0	**25**				
02:45		0	**58**	1	145	1	**37**	3	109	4	254
03:00		1	**37**			3	**86**				
03:15		2	**35**			2	**35**				
03:30		1	35			0	20				
03:45		1	31	5	138	2	22	7	163	12	301
04:00		3	21			0	29				
04:15		2	20			1	29				
04:30		4	26			0	37				
04:45		4	28	13	95	3	40	4	135	17	230
05:00		3	34			5	42				
05:15		7	29			4	39				
05:30		11	30			5	43				
05:45		7	38	28	131	6	47	20	171	48	302
06:00		15	26			7	35				
06:15		11	25			12	28				
06:30		13	17			5	33				
06:45		17	37	56	105	11	28	35	124	91	229
07:00		17	43			8	23				
07:15		30	27			17	26				
07:30		**56**	20			18	10				
07:45		**73**	15	176	105	**24**	20	67	79	243	184
08:00		**64**	35			**48**	16				
08:15		**57**	17			**49**	13				
08:30		13	18			**30**	14				
08:45		15	20	149	90	16	8	143	51	292	141
09:00		10	19			14	15				
09:15		12	15			9	11				
09:30		17	6			12	6				
09:45		17	11	56	51	9	8	44	40	100	91
10:00		14	5			15	7				
10:15		22	1			14	5				
10:30		22	3			27	5				
10:45		19	2	77	11	14	2	70	19	147	30
11:00		13	1			21	6				
11:15		23	1			22	3				
11:30		27	2			17	3				
11:45		22	3	85	7	19	5	79	17	164	24
Total		650	1040	650	1040	479	1094	479	1094	1129	2134
Combined Total		1690		1690		1573		1573		3263	
AM Peak		07:30				07:45					
Vol.		250				151					
P.H.F.		0.856				0.770					
PM Peak			02:30				02:30				
Vol.			171				183				
P.H.F.			0.737				0.532				
Percentage		38.5%	61.5%			30.5%	69.5%				
ADT/AADT		ADT 3,263		AADT 3,263							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Iowa Avenue
At BNSF Railroad Crossing
24 Hour Directional Volume Count

RIIOBNSF
Site Code: 082357C
Date Start: 12-Sep-07
Date End: 12-Sep-07

Start	12-Sep-07	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		17	102			10	94				
12:15		11	131			9	132				
12:30		11	145			5	133				
12:45		13	110	52	488	11	136	35	495	87	983
01:00		18	157			8	128				
01:15		4	148			7	114				
01:30		18	145			11	116				
01:45		5	128	45	578	13	101	39	459	84	1037
02:00		10	142			5	143				
02:15		8	127			4	151				
02:30		7	160			7	169				
02:45		8	153	33	582	4	162	20	625	53	1207
03:00		10	159			5	137				
03:15		4	102			11	130				
03:30		11	77			13	88				
03:45		8	125	33	463	4	179	33	534	66	997
04:00		13	102			16	89				
04:15		3	**247**			17	**271**				
04:30		20	**211**			30	**182**				
04:45		23	**184**	59	744	43	**192**	106	734	165	1478
05:00		18	**229**			39	**190**				
05:15		29	187			46	208				
05:30		47	186			73	161				
05:45		49	135	143	737	115	152	273	711	416	1448
06:00		52	126			73	120				
06:15		55	113			107	132				
06:30		54	92			96	78				
06:45		103	51	264	382	180	66	456	396	720	778
07:00		151	85			**155**	89				
07:15		109	89			**132**	69				
07:30		152	54			**187**	73				
07:45		**174**	56	586	284	**227**	64	701	295	1287	579
08:00		**150**	73			137	68				
08:15		**130**	52			131	63				
08:30		**183**	29			119	28				
08:45		141	47	604	201	115	40	502	199	1106	400
09:00		127	64			99	49				
09:15		74	42			58	42				
09:30		112	38			132	43				
09:45		106	42	419	186	89	44	378	178	797	364
10:00		86	63			105	69				
10:15		85	49			93	49				
10:30		110	41			80	16				
10:45		121	26	402	179	93	28	371	162	773	341
11:00		109	35			100	20				
11:15		120	18			105	27				
11:30		86	21			105	20				
11:45		114	10	429	84	116	13	426	80	855	164
Total		3069	4908	3069	4908	3340	4868	3340	4868	6409	9776
Combined Total		7977		7977		8208		8208		16185	
AM Peak		07:45				07:00					
Vol.		637				701					
P.H.F.		0.870				0.772					
PM Peak			04:15				04:15				
Vol.			871				835				
P.H.F.			0.882				0.770				
Percentage		38.5%	61.5%			40.7%	59.3%				
ADT/AADT		ADT 16,185		AADT 16,185							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Juanro Way
S/ Dewey Avenue
24 Hour Directional Volume Count

RIJUSDE
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	18-Sep-07 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	0			1	0				
12:15		0	0			0	5				
12:30		0	0			0	0				
12:45		0	1	0	1	1	0	2	5	2	6
01:00		0	0			0	0				
01:15		0	1			0	1				
01:30		0	0			0	1				
01:45		0	0	0	1	1	2	1	4	1	5
02:00		0	0			0	1				
02:15		0	1			0	0				
02:30		0	1			0	0				
02:45		0	0	0	2	1	0	1	1	1	3
03:00		0	0			0	2				
03:15		0	1			0	0				
03:30		1	1			0	2				
03:45		0	1	1	3	0	0	0	4	1	7
04:00		0	0			1	5				
04:15		0	2			0	0				
04:30		0	1			2	1				
04:45		0	0	0	3	0	1	3	7	3	10
05:00		0	0			0	1				
05:15		1	1			1	1				
05:30		0	0			1	0				
05:45		0	0	1	1	0	0	2	2	3	3
06:00		0	0			1	3				
06:15		0	1			0	1				
06:30		0	0			0	1				
06:45		0	0	0	1	0	1	1	6	1	7
07:00		0	4			0	2				
07:15		3	0			2	1				
07:30		0	1			1	0				
07:45		1	0	4	5	3	0	6	3	10	8
08:00		1	0			4	0				
08:15		0	0			0	0				
08:30		0	1			0	0				
08:45		0	0	1	1	2	0	6	0	7	1
09:00		0	0			3	1				
09:15		0	1			1	4				
09:30		0	0			1	0				
09:45		1	3	1	4	3	1	8	6	9	10
10:00		0	0			0	0				
10:15		2	0			1	1				
10:30		0	0			1	0				
10:45		1	0	3	0	0	0	2	1	5	1
11:00		1	0			0	0				
11:15		0	0			1	1				
11:30		0	0			2	0				
11:45		0	0	1	0	1	0	4	1	5	1
Total		12	22	12	22	36	40	36	40	48	62
Combined Total		34		34		76		76		110	
AM Peak		07:15				07:15					
Vol.		5				10					
P.H.F.		0.417				0.625					
PM Peak			06:15				03:15				
Vol.			5				7				
P.H.F.			0.313				0.350				
Percentage		35.3%	64.7%			47.4%	52.6%				
ADT/AADT		ADT 110		AADT 110							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Madison Street
At BNSF Railroad Crossing
24 Hour Directional Volume Count

RIMABNSF
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	18-Sep-07 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	97			11	104				
12:15		5	89			9	133				
12:30		6	104			11	108				
12:45		5	101	24	391	6	118	37	463	61	854
01:00		3	93			2	125				
01:15		7	130			6	106				
01:30		9	116			4	116				
01:45		3	94	22	433	4	108	16	455	38	888
02:00		7	110			3	105				
02:15		2	109			6	126				
02:30		3	132			7	133				
02:45		8	137	20	488	11	122	27	486	47	974
03:00		4	**143**			3	154				
03:15		8	**118**			3	144				
03:30		12	**148**			3	146				
03:45		9	**139**	33	548	2	128	11	572	44	1120
04:00		7	139			5	141				
04:15		26	115			9	121				
04:30		52	132			12	**177**				
04:45		40	144	125	530	20	**152**	46	591	171	1121
05:00		40	110			23	**152**				
05:15		52	135			22	**178**				
05:30		48	134			33	173				
05:45		74	117	214	496	62	144	140	647	354	1143
06:00		65	114			57	155				
06:15		104	104			54	132				
06:30		113	100			94	126				
06:45		96	106	378	424	83	138	288	551	666	975
07:00		104	108			88	123				
07:15		**161**	88			76	96				
07:30		**191**	92			80	106				
07:45		**168**	85	624	373	90	96	334	421	958	794
08:00		**140**	82			96	109				
08:15		144	62			92	68				
08:30		117	69			102	73				
08:45		119	59	520	272	64	66	354	316	874	588
09:00		98	65			77	67				
09:15		99	3			68	8				
09:30		123	53			89	58				
09:45		111	29	431	150	81	46	315	179	746	329
10:00		94	31			89	43				
10:15		96	28			79	43				
10:30		77	20			89	27				
10:45		86	17	353	96	92	27	349	140	702	236
11:00		90	13			**72**	31				
11:15		101	11			**113**	27				
11:30		113	12			**120**	18				
11:45		115	21	419	57	**115**	19	420	95	839	152
Total		3163	4258	3163	4258	2337	4916	2337	4916	5500	9174
Combined Total		7421		7421		7253		7253		14674	
AM Peak		07:15				11:00					
Vol.		660				420					
P.H.F.		0.864				0.875					
PM Peak			03:00				04:30				
Vol.			548				659				
P.H.F.			0.926				0.926				
Percentage		42.6%	57.4%			32.2%	67.8%				
ADT/AADT		ADT 14,674		AADT 14,674							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Third Street
At BNSF Railroad Crossing
24 Hour Directional Volume Count

RI3BNSF
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start	18-Sep-07	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		11	151			11	134				
12:15		7	103			5	122				
12:30		9	112			6	118				
12:45		7	106	34	472	6	116	28	490	62	962
01:00		5	127			7	141				
01:15		4	114			8	113				
01:30		6	98			13	90				
01:45		9	138	24	477	4	127	32	471	56	948
02:00		6	115			2	134				
02:15		3	**111**			5	143				
02:30		8	**143**			0	175				
02:45		7	**144**	24	513	2	157	9	609	33	1122
03:00		9	**159**			2	153				
03:15		6	109			3	180				
03:30		13	136			5	212				
03:45		5	117	33	521	3	208	13	753	46	1274
04:00		11	131			5	237				
04:15		21	119			10	203				
04:30		27	131			6	198				
04:45		26	127	85	508	14	**241**	35	879	120	1387
05:00		33	148			23	**282**				
05:15		52	125			18	**294**				
05:30		53	135			51	**259**				
05:45		14	122	152	530	11	225	103	1060	255	1590
06:00		71	8			50	5				
06:15		52	42			35	129				
06:30		68	76			66	127				
06:45		91	70	282	196	65	88	216	349	498	545
07:00		0	71			0	109				
07:15		82	52			**95**	70				
07:30		**109**	37			**120**	65				
07:45		**146**	43	337	203	**124**	47	339	291	676	494
08:00		**121**	43			**85**	61				
08:15		**119**	50			68	52				
08:30		98	20			85	48				
08:45		101	41	439	154	83	52	321	213	760	367
09:00		96	42			82	49				
09:15		111	33			79	59				
09:30		82	34			90	45				
09:45		97	35	386	144	98	38	349	191	735	335
10:00		107	32			86	33				
10:15		95	38			83	38				
10:30		104	49			85	36				
10:45		97	23	403	142	101	20	355	127	758	269
11:00		103	24			107	18				
11:15		102	18			92	19				
11:30		91	24			93	15				
11:45		110	19	406	85	102	9	394	61	800	146
Total		2605	3945	2605	3945	2194	5494	2194	5494	4799	9439
Combined Total		6550		6550		7688		7688		14238	
AM Peak		07:30				07:15					
Vol.		495				424					
P.H.F.		0.848				0.855					
PM Peak			02:15				04:45				
Vol.			557				1076				
P.H.F.			0.876				0.915				
Percentage		39.8%	60.2%			28.5%	71.5%				
ADT/AADT		ADT 14,238		AADT 14,238							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Mary Street
At BNSF Railroad Crossing
24 Hour Directional Volume Count

RIMYBNSF
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start	18-Sep-07	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		3	86			8	95				
12:15		7	78			14	105				
12:30		3	70			8	112				
12:45		3	115	16	349	9	95	39	407	55	756
01:00		4	94			1	105				
01:15		2	67			2	81				
01:30		5	126			6	94				
01:45		1	94	12	381	1	110	10	390	22	771
02:00		2	80			8	124				
02:15		1	**103**			7	118				
02:30		2	**132**			5	120				
02:45		1	**120**	6	435	0	115	20	477	26	912
03:00		5	**114**			6	137				
03:15		5	91			5	180				
03:30		4	107			3	138				
03:45		6	90	20	402	12	128	26	583	46	985
04:00		9	108			2	161				
04:15		10	68			10	125				
04:30		19	108			0	**245**				
04:45		10	101	48	385	10	**180**	22	711	70	1096
05:00		26	85			10	**172**				
05:15		35	95			12	**268**				
05:30		47	102			9	209				
05:45		44	100	152	382	23	207	54	856	206	1238
06:00		44	74			29	151				
06:15		53	78			33	154				
06:30		120	78			30	108				
06:45		139	75	356	305	50	113	142	526	498	831
07:00		145	66			57	104				
07:15		212	62			56	127				
07:30		**282**	62			89	104				
07:45		**186**	49	825	239	64	101	266	436	1091	675
08:00		**316**	44			73	89				
08:15		**259**	49			95	89				
08:30		137	25			67	87				
08:45		144	36	856	154	76	65	311	330	1167	484
09:00		107	23			67	58				
09:15		98	40			67	84				
09:30		107	19			52	54				
09:45		98	16	410	98	71	32	257	228	667	326
10:00		123	20			75	44				
10:15		90	21			76	42				
10:30		82	13			88	36				
10:45		105	8	400	62	**99**	28	338	150	738	212
11:00		80	11			**96**	24				
11:15		90	7			**90**	15				
11:30		91	7			**91**	12				
11:45		77	7	338	32	91	15	368	66	706	98
Total		3439	3224	3439	3224	1853	5160	1853	5160	5292	8384
Combined Total		6663		6663		7013		7013		13676	
AM Peak		07:30				10:45					
Vol.		1043				376					
P.H.F.		0.825				0.949					
PM Peak			02:15				04:30				
Vol.			469				865				
P.H.F.			0.888				0.807				
Percentage		51.6%	48.4%			26.4%	73.6%				
ADT/AADT		ADT 13,676		AADT 13,676							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Tyler Street
At BNSF Railroad Crossing
24 Hour Directional Volume Count

RITYBNSF
Site Code: 082357C
Date Start: 20-Sep-07
Date End: 20-Sep-07

Start Time	20-Sep-07 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		10	105			15	96				
12:15		7	86			13	107				
12:30		6	90			17	101				
12:45		5	113	28	394	11	88	56	392	84	786
01:00		5	93			10	129				
01:15		6	111			7	112				
01:30		8	110			12	122				
01:45		4	111	23	425	7	98	36	461	59	886
02:00		1	121			4	146				
02:15		2	122			9	129				
02:30		3	119			4	120				
02:45		4	127	10	489	5	163	22	558	32	1047
03:00		4	151			3	168				
03:15		7	138			6	159				
03:30		9	122			4	167				
03:45		11	156	31	567	6	155	19	649	50	1216
04:00		18	135			3	162				
04:15		25	118			19	159				
04:30		39	158			12	163				
04:45		35	130	117	541	20	207	54	691	171	1232
05:00		40	**173**			33	**218**				
05:15		46	**167**			13	**199**				
05:30		58	**168**			35	**218**				
05:45		66	**153**	210	661	21	**260**	102	895	312	1556
06:00		46	148			38	196				
06:15		84	108			57	180				
06:30		100	140			41	164				
06:45		155	115	385	511	37	150	173	690	558	1201
07:00		**212**	83			39	134				
07:15		**244**	77			99	104				
07:30		**258**	74			74	121				
07:45		**205**	61	919	295	55	91	267	450	1186	745
08:00		169	57			76	89				
08:15		147	52			44	96				
08:30		140	51			63	109				
08:45		134	44	590	204	62	89	245	383	835	587
09:00		120	45			65	89				
09:15		104	29			66	73				
09:30		122	31			59	61				
09:45		120	38	466	143	68	56	258	279	724	422
10:00		109	25			68	53				
10:15		93	16			68	34				
10:30		107	15			64	28				
10:45		137	21	446	77	78	25	278	140	724	217
11:00		105	11			**79**	30				
11:15		111	13			**107**	22				
11:30		106	12			**86**	16				
11:45		93	7	415	43	**86**	14	358	82	773	125
Total		3640	4350	3640	4350	1868	5670	1868	5670	5508	10020
Combined Total		7990		7990		7538		7538		15528	
AM Peak		07:00				11:00					
Vol.		919				358					
P.H.F.		0.891				0.836					
PM Peak			05:00				05:00				
Vol.			661				895				
P.H.F.			0.955				0.861				
Percentage		45.6%	54.4%			24.8%	75.2%				
ADT/AADT		ADT 15,528		AADT 15,528							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Magnolia Avenue
At Union Pacific Railroad Crossing
24 Hour Directional Volume Count

RIMGUP
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	18-Sep-07 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		14	**209**			24	304				
12:15		12	**232**			17	293				
12:30		13	**264**			13	266				
12:45		8	**239**	47	944	11	267	65	1130	112	2074
01:00		7	151			10	191				
01:15		2	223			8	228				
01:30		11	287			2	271				
01:45		10	243	30	904	12	250	32	940	62	1844
02:00		4	191			10	277				
02:15		2	206			1	250				
02:30		3	193			2	252				
02:45		4	183	13	773	7	226	20	1005	33	1778
03:00		5	198			5	263				
03:15		5	216			4	297				
03:30		10	196			4	278				
03:45		7	195	27	805	8	247	21	1085	48	1890
04:00		8	225			10	285				
04:15		23	160			15	246				
04:30		18	231			21	331				
04:45		22	206	71	822	21	285	67	1147	138	1969
05:00		23	217			18	**340**				
05:15		25	236			12	**334**				
05:30		28	245			26	**317**				
05:45		38	232	114	930	38	**310**	94	1301	208	2231
06:00		46	177			37	297				
06:15		57	159			41	214				
06:30		137	193			56	189				
06:45		153	165	393	694	67	183	201	883	594	1577
07:00		133	134			83	179				
07:15		207	139			103	147				
07:30		203	122			121	149				
07:45		173	93	716	488	85	137	392	612	1108	1100
08:00		**238**	78			133	124				
08:15		**245**	111			163	148				
08:30		**191**	94			125	140				
08:45		**257**	80	931	363	219	97	640	509	1571	872
09:00		171	89			156	133				
09:15		192	87			167	129				
09:30		179	69			180	84				
09:45		184	58	726	303	172	52	675	398	1401	701
10:00		210	56			200	39				
10:15		224	45			215	40				
10:30		182	34			236	44				
10:45		189	29	805	164	232	38	883	161	1688	325
11:00		200	26			**232**	24				
11:15		140	22			**179**	26				
11:30		219	19			**277**	26				
11:45		232	15	791	82	**309**	20	997	96	1788	178
Total		4664	7272	4664	7272	4087	9267	4087	9267	8751	16539
Combined Total		11936		11936		13354		13354		25290	
AM Peak		08:00				11:00					
Vol.		931				997					
P.H.F.		0.906				0.807					
PM Peak			12:00				05:00				
Vol.			944				1301				
P.H.F.			0.822				0.957				
Percentage		39.1%	60.9%			30.6%	69.4%				
ADT/AADT		ADT 25,290		AADT 25,290							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Buchanan Street
At BNSF Railroad Crossing
24 Hour Directional Volume Count

RIBUBNSF
Site Code: 082357C
Date Start: 12-Sep-07
Date End: 12-Sep-07

Start Time	12-Sep-07 Wed	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		4	61			10	55				
12:15		2	53			5	54				
12:30		0	80			8	59				
12:45		3	73	9	267	2	52	25	220	34	487
01:00		0	73			6	41				
01:15		1	67			5	54				
01:30		2	75			3	64				
01:45		6	80	9	295	2	54	16	213	25	508
02:00		2	66			2	52				
02:15		6	48			3	53				
02:30		2	76			2	60				
02:45		3	**66**	13	256	1	91	8	256	21	512
03:00		1	**87**			3	76				
03:15		2	**69**			1	98				
03:30		5	**77**			1	73				
03:45		6	66	14	299	1	77	6	324	20	623
04:00		3	54			3	76				
04:15		22	85			0	101				
04:30		17	54			5	**83**				
04:45		26	73	68	266	2	**88**	10	348	78	614
05:00		47	80			8	**105**				
05:15		32	63			2	**105**				
05:30		69	69			2	83				
05:45		50	76	198	288	5	88	17	381	215	669
06:00		27	45			12	92				
06:15		87	74			18	77				
06:30		98	61			25	66				
06:45		136	83	348	263	39	85	94	320	442	583
07:00		128	76			33	78				
07:15		124	57			46	71				
07:30		**142**	44			54	56				
07:45		**152**	38	546	215	33	42	166	247	712	462
08:00		**142**	48			43	59				
08:15		**135**	48			54	54				
08:30		98	23			33	36				
08:45		72	40	447	159	43	45	173	194	620	353
09:00		88	26			40	52				
09:15		65	34			35	36				
09:30		73	36			42	30				
09:45		99	18	325	114	28	27	145	145	470	259
10:00		65	34			40	34				
10:15		77	13			**48**	27				
10:30		57	17			**43**	17				
10:45		83	4	282	68	**68**	18	199	96	481	164
11:00		93	12			**56**	13				
11:15		85	7			41	9				
11:30		73	4			43	13				
11:45		70	5	321	28	38	17	178	52	499	80
Total		2580	2518	2580	2518	1037	2796	1037	2796	3617	5314
Combined Total		5098		5098		3833		3833		8931	
AM Peak		07:30				10:15					
Vol.		571				215					
P.H.F.		0.939				0.790					
PM Peak			02:45				04:30				
Vol.			299				381				
P.H.F.			0.859				0.907				
Percentage		50.6%	49.4%			27.1%	72.9%				
ADT/AADT		ADT 8,931		AADT 8,931							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Nidever Avenue
S/ Dewey Avenue
24 Hour Directional Volume Count

RINISDE
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start	18-Sep-07	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		2	2			0	4				
12:15		0	1			0	4				
12:30		0	2			0	6				
12:45		0	7	2	12	0	2	0	16	2	28
01:00		0	0			1	5				
01:15		0	5			1	2				
01:30		0	4			0	1				
01:45		0	4	0	13	0	1	2	9	2	22
02:00		0	6			0	3				
02:15		0	6			0	5				
02:30		0	5			0	2				
02:45		0	8	0	25	0	5	0	15	0	40
03:00		0	7			0	3				
03:15		0	3			0	4				
03:30		0	5			0	2				
03:45		0	3	0	18	2	2	2	11	2	29
04:00		0	2			0	4				
04:15		0	4			0	5				
04:30		0	5			0	3				
04:45		0	2	0	13	0	3	0	15	0	28
05:00		1	1			1	4				
05:15		0	3			0	6				
05:30		2	2			0	4				
05:45		0	1	3	7	0	4	1	18	4	25
06:00		1	2			0	4				
06:15		2	6			0	6				
06:30		5	2			3	1				
06:45		1	7	9	17	1	9	4	20	13	37
07:00		3	1			0	0				
07:15		2	4			4	3				
07:30		4	1			1	3				
07:45		6	2	15	8	0	1	5	7	20	15
08:00		6	1			3	2				
08:15		4	1			1	2				
08:30		2	2			1	2				
08:45		6	3	18	7	0	4	5	10	23	17
09:00		1	3			4	4				
09:15		1	4			0	5				
09:30		0	0			3	2				
09:45		2	2	4	9	0	0	7	11	11	20
10:00		2	0			3	3				
10:15		5	0			1	3				
10:30		1	0			1	0				
10:45		0	0	8	0	1	3	6	9	14	9
11:00		2	0			3	0				
11:15		1	0			0	1				
11:30		0	0			3	1				
11:45		0	0	3	0	0	1	6	3	9	3
Total		62	129	62	129	38	144	38	144	100	273
Combined Total		191		191		182		182		373	
AM Peak		07:30				06:30					
Vol.		20				8					
P.H.F.		0.833				0.500					
PM Peak			02:15				06:00				
Vol.			26				20				
P.H.F.			0.813				0.556				
Percentage		32.5%	67.5%			20.9%	79.1%				
ADT/AADT		ADT 373		AADT 373							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Palm Avenue
At Union Pacific Railroad Crossing
24 Hour Directional Volume Count

RIPAUP
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	18-Sep-07 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		7	65			4	56				
12:15		6	69			4	66				
12:30		5	53			4	52				
12:45		5	65	23	252	4	48	16	222	39	474
01:00		3	54			2	39				
01:15		2	70			4	55				
01:30		1	76			1	57				
01:45		1	55	7	255	0	46	7	197	14	452
02:00		2	54			1	40				
02:15		2	66			4	66				
02:30		2	63			1	64				
02:45		1	84	7	267	1	75	7	245	14	512
03:00		0	85			1	79				
03:15		2	81			0	67				
03:30		1	87			4	80				
03:45		0	88	3	341	4	86	9	312	12	653
04:00		2	69			5	62				
04:15		3	71			6	76				
04:30		6	**105**			4	**101**				
04:45		3	**72**	14	317	5	**103**	20	342	34	659
05:00		6	**90**			9	**95**				
05:15		10	**100**			11	**107**				
05:30		10	80			14	100				
05:45		10	79	36	349	15	87	49	389	85	738
06:00		19	87			19	60				
06:15		26	63			26	75				
06:30		37	66			26	61				
06:45		52	55	134	271	42	58	113	254	247	525
07:00		64	63			64	37				
07:15		**80**	61			68	59				
07:30		**89**	40			**105**	36				
07:45		**116**	34	349	198	**97**	23	334	155	683	353
08:00		**119**	37			**71**	31				
08:15		63	25			**72**	33				
08:30		59	30			37	23				
08:45		72	37	313	129	65	27	245	114	558	243
09:00		56	46			56	25				
09:15		38	41			48	24				
09:30		54	27			40	31				
09:45		42	27	190	141	47	12	191	92	381	233
10:00		41	23			56	16				
10:15		49	23			61	14				
10:30		37	14			35	10				
10:45		47	9	174	69	37	12	189	52	363	121
11:00		48	12			37	7				
11:15		46	10			50	8				
11:30		52	10			51	7				
11:45		56	12	202	44	46	6	184	28	386	72
Total		1452	2633	1452	2633	1364	2402	1364	2402	2816	5035
Combined Total		4085		4085		3766		3766		7851	
AM Peak		07:15				07:30					
Vol.		404				345					
P.H.F.		0.849				0.821					
PM Peak			04:30				04:30				
Vol.			367				406				
P.H.F.			0.874				0.949				
Percentage		35.5%	64.5%			36.2%	63.8%				
ADT/AADT		ADT 7,851		AADT 7,851							

Counts Unlimited, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Streeter Avenue
at Union Pacific Railroad Crossing
24 Hour Directional Classification Count
Northbound

RISTUP
Site Code: 082357
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/07	1	30	13	0	0	0	0	0	0	0	0	0	0	44
01:00	0	21	2	0	0	0	0	0	0	0	0	0	0	23
02:00	0	16	4	0	0	0	0	0	0	0	0	0	0	20
03:00	0	9	4	0	1	0	0	0	0	0	0	0	0	14
04:00	0	19	7	0	0	0	0	0	0	0	0	0	0	26
05:00	1	49	20	0	1	0	0	0	0	0	0	0	0	71
06:00	1	137	55	2	10	1	0	**3**	0	0	0	0	0	209
07:00	2	297	90	**4**	16	1	0	3	**2**	0	0	0	**3**	418
08:00	0	**327**	**116**	4	**21**	2	0	3	0	0	0	0	0	**473**
09:00	1	193	58	2	16	**4**	0	0	0	0	0	0	0	274
10:00	0	213	72	2	18	1	0	2	0	0	0	0	0	308
11:00	**3**	219	59	2	20	2	0	1	0	**1**	0	0	0	307
12 PM	0	277	76	3	12	1	0	2	0	0	0	0	0	371
13:00	5	229	74	3	12	**2**	0	2	0	0	0	0	0	327
14:00	2	310	99	3	21	1	0	1	0	0	0	0	1	438
15:00	0	354	**138**	**4**	**23**	0	0	**4**	0	0	0	0	**2**	525
16:00	3	313	91	4	19	0	0	2	**1**	0	0	0	1	434
17:00	**7**	**408**	95	1	18	1	0	2	0	0	0	0	2	**534**
18:00	4	332	98	2	9	0	0	2	0	**1**	0	0	2	450
19:00	2	273	92	1	8	0	0	0	1	0	0	0	0	377
20:00	3	242	70	1	9	0	0	2	0	0	0	0	0	327
21:00	1	189	34	0	5	0	0	0	0	0	0	0	0	229
22:00	2	118	28	1	1	0	0	0	0	0	0	0	0	150
23:00	2	62	15	0	3	0	0	0	0	0	0	0	0	82
Total	40	4637	1410	39	243	16	0	29	4	2	0	0	11	6431
Percent	0.6%	72.1%	21.9%	0.6%	3.8%	0.2%	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.2%	
AM Peak	11:00	08:00	08:00	07:00	08:00	09:00		06:00	07:00	11:00			07:00	08:00
Vol.	3	327	116	4	21	4		3	2	1			3	473
PM Peak	17:00	17:00	15:00	15:00	15:00	13:00		15:00	16:00	18:00			15:00	17:00
Vol.	7	408	138	4	23	2		4	1	1			2	534
Grand Total	40	4637	1410	39	243	16	0	29	4	2	0	0	11	6431
Percent	0.6%	72.1%	21.9%	0.6%	3.8%	0.2%	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.2%	

Counts Unlimited, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Streeter Avenue
at Union Pacific Railroad Crossing
24 Hour Directional Classification Count
Southbound

RISTUP
Site Code: 082357
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/07	0	24	6	0	0	0	0	0	0	0	0	0	0	30
01:00	0	20	1	1	0	0	0	0	0	0	0	0	0	22
02:00	0	14	5	0	0	0	0	0	0	0	0	0	0	19
03:00	0	12	9	0	0	0	0	0	0	0	0	0	0	21
04:00	1	39	20	1	1	0	0	0	0	0	0	0	0	62
05:00	0	75	19	0	5	0	0	1	0	0	0	0	0	100
06:00	**3**	173	55	1	13	1	0	1	0	0	0	0	0	247
07:00	3	**335**	79	**5**	**30**	0	0	0	0	0	0	0	1	**453**
08:00	2	310	**90**	2	12	0	0	**2**	0	0	0	0	**2**	420
09:00	0	207	66	2	15	1	0	2	0	0	0	0	1	294
10:00	2	190	62	0	10	**2**	0	1	**1**	0	0	0	0	268
11:00	0	227	70	3	12	1	0	1	0	0	0	0	0	314
12 PM	1	254	63	2	6	0	0	1	0	0	0	0	0	327
13:00	2	260	65	2	18	0	0	2	**1**	0	0	0	0	350
14:00	4	306	91	1	**20**	0	0	3	1	0	0	0	0	426
15:00	3	374	111	2	16	0	0	3	1	0	0	0	**1**	511
16:00	4	390	100	**3**	16	0	0	**5**	0	0	0	0	1	519
17:00	4	**475**	**134**	1	15	0	0	3	0	0	0	0	0	**632**
18:00	3	341	79	1	10	0	0	0	0	0	0	0	0	434
19:00	**6**	270	59	1	13	0	0	0	0	0	0	0	0	349
20:00	0	180	46	1	8	0	0	0	0	0	0	0	0	235
21:00	0	129	34	0	1	0	0	0	0	0	0	0	0	164
22:00	0	97	14	1	0	0	0	0	0	0	0	0	0	112
23:00	0	38	12	0	0	0	0	0	0	0	0	0	0	50
Total	38	4740	1290	30	221	5	0	25	4	0	0	0	6	6359
Percent	0.6%	74.5%	20.3%	0.5%	3.5%	0.1%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.1%	
AM Peak	06:00	07:00	08:00	07:00	07:00	10:00		08:00	10:00				08:00	07:00
Vol.	3	335	90	5	30	2		2	1				2	453
PM Peak	19:00	17:00	17:00	16:00	14:00			16:00	13:00				15:00	17:00
Vol.	6	475	134	3	20			5	1				1	632
Grand Total	38	4740	1290	30	221	5	0	25	4	0	0	0	6	6359
Percent	0.6%	74.5%	20.3%	0.5%	3.5%	0.1%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.1%	

Counts Unlimited, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Streeter Avenue
at Union Pacific Railroad Crossing
24 Hour Directional Classification Count
Northbound, Southbound

RISTUP
Site Code: 082357
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/07	1	54	19	0	0	0	0	0	0	0	0	0	0	74
01:00	0	41	3	1	0	0	0	0	0	0	0	0	0	45
02:00	0	30	9	0	0	0	0	0	0	0	0	0	0	39
03:00	0	21	13	0	1	0	0	0	0	0	0	0	0	35
04:00	1	58	27	1	1	0	0	0	0	0	0	0	0	88
05:00	1	124	39	0	6	0	0	1	0	0	0	0	0	171
06:00	4	310	110	3	23	2	0	4	0	0	0	0	0	456
07:00	**5**	632	169	**9**	**46**	1	0	3	**2**	0	0	0	**4**	871
08:00	2	**637**	**206**	6	33	2	0	**5**	0	0	0	0	2	**893**
09:00	1	400	124	4	31	**5**	0	2	0	0	0	0	1	568
10:00	2	403	134	2	28	3	0	3	1	0	0	0	0	576
11:00	3	446	129	5	32	3	0	2	0	**1**	0	0	0	621
12 PM	1	531	139	5	18	1	0	3	0	0	0	0	0	698
13:00	7	489	139	5	30	**2**	0	4	**1**	0	0	0	0	677
14:00	6	616	190	4	**41**	1	0	4	1	0	0	0	1	864
15:00	3	728	**249**	6	39	0	0	**7**	1	0	0	0	**3**	1036
16:00	7	703	191	**7**	35	0	0	7	1	0	0	0	2	953
17:00	**11**	**883**	229	2	33	1	0	5	0	0	0	0	2	**1166**
18:00	7	673	177	3	19	0	0	2	0	**1**	0	0	2	884
19:00	8	543	151	2	21	0	0	0	1	0	0	0	0	726
20:00	3	422	116	2	17	0	0	2	0	0	0	0	0	562
21:00	1	318	68	0	6	0	0	0	0	0	0	0	0	393
22:00	2	215	42	2	1	0	0	0	0	0	0	0	0	262
23:00	2	100	27	0	3	0	0	0	0	0	0	0	0	132
Total	78	9377	2700	69	464	21	0	54	8	2	0	0	17	12790
Percent	0.6%	73.3%	21.1%	0.5%	3.6%	0.2%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.1%	
AM Peak	07:00	08:00	08:00	07:00	07:00	09:00		08:00	07:00	11:00			07:00	08:00
Vol.	5	637	206	9	46	5		5	2	1			4	893
PM Peak	17:00	17:00	15:00	16:00	14:00	13:00		15:00	13:00	18:00			15:00	17:00
Vol.	11	883	249	7	41	2		7	1	1			3	1166
Grand Total	78	9377	2700	69	464	21	0	54	8	2	0	0	17	12790
Percent	0.6%	73.3%	21.1%	0.5%	3.6%	0.2%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.1%	

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Columbia Avenue
At BNSF Railroad Crossing
24 Hour Directional Volume Count

RICOBNSF
Site Code: 082357C
Date Start: 12-Sep-07
Date End: 12-Sep-07

Start Time	12-Sep-07 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	181			13	117				
12:15		10	167			12	99				
12:30		13	138			4	112				
12:45		9	136	40	622	6	102	35	430	75	1052
01:00		15	171			15	97				
01:15		16	169			6	100				
01:30		18	183			10	119				
01:45		37	178	86	701	9	89	40	405	126	1106
02:00		4	151			6	136				
02:15		10	164			5	130				
02:30		4	159			6	144				
02:45		13	162	31	636	9	126	26	536	57	1172
03:00		12	173			10	137				
03:15		13	150			5	99				
03:30		33	121			8	72				
03:45		16	**243**	74	687	10	112	33	420	107	1107
04:00		29	**171**			15	133				
04:15		25	**175**			18	110				
04:30		44	**143**			12	**150**				
04:45		84	147	182	636	32	**116**	77	509	259	1145
05:00		46	179			21	**205**				
05:15		74	164			26	**120**				
05:30		117	168			33	101				
05:45		224	166	461	677	34	78	114	504	575	1181
06:00		148	122			49	71				
06:15		175	121			34	73				
06:30		145	87			44	63				
06:45		228	90	696	420	51	41	178	248	874	668
07:00		218	62			79	61				
07:15		**226**	64			52	35				
07:30		**304**	72			88	46				
07:45		**310**	54	1058	252	73	34	292	176	1350	428
08:00		**223**	72			80	33				
08:15		177	28			73	24				
08:30		171	32			67	23				
08:45		204	48	775	180	**103**	29	323	109	1098	289
09:00		179	24			**109**	50				
09:15		167	30			**86**	27				
09:30		178	43			**103**	20				
09:45		146	49	670	146	94	24	392	121	1062	267
10:00		150	43			100	21				
10:15		153	33			78	24				
10:30		168	57			75	29				
10:45		158	25	629	158	71	19	324	93	953	251
11:00		164	21			113	20				
11:15		152	27			98	14				
11:30		142	12			79	33				
11:45		160	16	618	76	73	9	363	76	981	152
Total		5320	5191	5320	5191	2197	3627	2197	3627	7517	8818
Combined Total		10511		10511		5824		5824		16335	
AM Peak		07:15				08:45					
Vol.		1063				401					
P.H.F.		0.857				0.887					
PM Peak			03:45				04:30				
Vol.			732				591				
P.H.F.			0.753				0.721				
Percentage		50.6%	49.4%			37.7%	62.3%				
ADT/AADT		ADT 16,335		AADT 16,335							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Riverside Avenue
At Union Pacific Railroad Crossing
24 Hour Directional Classification Count
Northbound

RIRIUP
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/07	0	20	2	0	0	0	0	0	0	0	0	0	0	22
01:00	0	7	4	0	0	0	0	0	0	0	0	0	0	11
02:00	0	9	2	0	1	0	0	0	0	0	0	0	0	12
03:00	**1**	11	4	0	1	0	0	0	0	0	0	0	0	17
04:00	0	22	17	0	6	0	0	0	0	0	0	0	0	45
05:00	1	57	12	0	6	0	0	0	0	0	0	0	0	76
06:00	1	113	20	0	10	0	0	**2**	0	0	0	0	0	146
07:00	1	228	**64**	0	12	**2**	0	1	0	0	0	0	0	308
08:00	0	223	59	**3**	6	0	0	2	0	0	0	0	0	293
09:00	1	207	44	0	6	0	0	1	0	0	0	0	0	259
10:00	1	231	51	1	4	1	0	1	0	0	0	0	0	290
11:00	**3**	**253**	46	0	**16**	0	0	2	0	0	0	0	0	**320**
12 PM	1	320	62	1	13	**1**	0	1	0	0	0	0	0	399
13:00	2	234	54	0	**16**	1	0	0	0	0	0	0	0	307
14:00	2	318	60	2	13	0	0	**2**	0	0	0	0	0	397
15:00	4	311	82	**3**	12	0	0	1	**2**	0	0	0	0	415
16:00	2	338	65	0	10	0	0	1	0	0	0	0	0	416
17:00	3	**448**	**86**	0	14	0	0	0	0	0	0	0	0	**551**
18:00	**6**	284	68	0	8	0	0	1	0	**1**	0	0	0	368
19:00	1	216	44	0	6	0	0	0	0	0	0	0	0	267
20:00	2	176	31	0	4	0	0	0	0	0	0	0	0	213
21:00	2	163	24	0	4	0	0	0	0	0	0	0	0	193
22:00	0	59	12	0	3	0	0	0	0	0	0	0	0	74
23:00	0	32	14	0	0	0	0	0	0	0	0	0	0	46
Day Total	34	4280	927	10	171	5	0	15	2	1	0	0	0	5445
Percent	0.6%	78.6%	17.0%	0.2%	3.1%	0.1%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	07:00	08:00	11:00	07:00		06:00						11:00
Vol.	3	253	64	3	16	2		2						320
PM Peak	18:00	17:00	17:00	15:00	13:00	12:00		14:00	15:00	18:00				17:00
Vol.	6	448	86	3	16	1		2	2	1				551
Grand Total	34	4280	927	10	171	5	0	15	2	1	0	0	0	5445
Percent	0.6%	78.6%	17.0%	0.2%	3.1%	0.1%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Riverside Avenue
At Union Pacific Railroad Crossing
24 Hour Directional Classification Count
Southbound

RIRIUP
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/07	0	38	4	0	0	0	0	0	0	0	0	0	0	42
01:00	0	12	1	1	0	0	0	0	0	0	0	0	0	14
02:00	0	16	2	0	1	0	0	0	0	0	0	0	0	19
03:00	0	14	0	0	0	0	0	0	0	0	0	0	0	14
04:00	1	11	4	0	1	0	0	1	0	0	0	0	0	18
05:00	0	42	12	1	3	0	0	0	**1**	0	0	0	0	59
06:00	1	189	46	0	8	**1**	0	0	0	0	0	0	0	245
07:00	**3**	333	81	1	18	0	0	2	0	0	0	0	0	438
08:00	1	**382**	**86**	**2**	**19**	0	0	**3**	0	0	0	0	0	**493**
09:00	2	252	68	2	13	0	0	3	1	0	0	0	0	341
10:00	0	228	54	2	11	0	0	0	0	0	0	0	0	295
11:00	0	255	49	1	10	0	0	1	1	**2**	0	0	0	319
12 PM	1	323	63	3	9	1	0	0	0	0	0	0	0	400
13:00	2	331	69	1	12	**2**	0	**4**	**3**	0	0	**1**	0	425
14:00	**4**	332	76	0	16	0	0	3	0	0	0	0	0	431
15:00	1	307	70	**4**	**18**	1	0	3	1	**1**	0	1	0	407
16:00	0	344	73	0	6	0	0	2	0	0	0	0	0	425
17:00	1	**509**	**90**	3	12	0	0	2	0	0	0	0	0	**617**
18:00	3	298	74	1	8	0	0	0	0	0	0	0	0	384
19:00	1	256	44	1	6	0	0	0	0	0	0	0	0	308
20:00	1	188	48	1	3	0	0	1	0	0	0	0	0	242
21:00	2	134	25	0	2	0	0	0	0	0	0	0	0	163
22:00	0	101	20	0	1	0	0	0	0	0	0	0	0	122
23:00	2	56	10	0	1	0	0	0	0	0	0	0	0	69
Day Total	26	4951	1069	24	178	5	0	25	7	3	0	2	0	6290
Percent	0.4%	78.7%	17.0%	0.4%	2.8%	0.1%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	08:00	08:00	08:00	06:00		08:00	05:00	11:00				08:00
Vol.	3	382	86	2	19	1		3	1	2				493
PM Peak	14:00	17:00	17:00	15:00	15:00	13:00		13:00	13:00	15:00		13:00		17:00
Vol.	4	509	90	4	18	2		4	3	1		1		617
Grand Total	26	4951	1069	24	178	5	0	25	7	3	0	2	0	6290
Percent	0.4%	78.7%	17.0%	0.4%	2.8%	0.1%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Riverside Avenue
At Union Pacific Railroad Crossing
24 Hour Directional Classification Count
Northbound, Southbound

RIRIUP
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
09/18/07	0	58	6	0	0	0	0	0	0	0	0	0	0	64
01:00	0	19	5	1	0	0	0	0	0	0	0	0	0	25
02:00	0	25	4	0	2	0	0	0	0	0	0	0	0	31
03:00	1	25	4	0	1	0	0	0	0	0	0	0	0	31
04:00	1	33	21	0	7	0	0	1	0	0	0	0	0	63
05:00	1	99	24	1	9	0	0	0	**1**	0	0	0	0	135
06:00	2	302	66	0	18	1	0	2	0	0	0	0	0	391
07:00	**4**	561	**145**	1	**30**	**2**	0	3	0	0	0	0	0	746
08:00	1	**605**	145	**5**	25	0	0	**5**	0	0	0	0	0	**786**
09:00	3	459	112	2	19	0	0	4	1	0	0	0	0	600
10:00	1	459	105	3	15	1	0	1	0	0	0	0	0	585
11:00	3	508	95	1	26	0	0	3	1	**2**	0	0	0	639
12 PM	2	643	125	4	22	2	0	1	0	0	0	0	0	799
13:00	4	565	123	1	28	**3**	0	4	**3**	0	0	**1**	0	732
14:00	6	650	136	2	29	0	0	**5**	0	0	0	0	0	828
15:00	5	618	152	**7**	**30**	1	0	4	3	**1**	0	1	0	822
16:00	2	682	138	0	16	0	0	3	0	0	0	0	0	841
17:00	4	**957**	**176**	3	26	0	0	2	0	0	0	0	0	**1168**
18:00	**9**	582	142	1	16	0	0	1	0	1	0	0	0	752
19:00	2	472	88	1	12	0	0	0	0	0	0	0	0	575
20:00	3	364	79	1	7	0	0	1	0	0	0	0	0	455
21:00	4	297	49	0	6	0	0	0	0	0	0	0	0	356
22:00	0	160	32	0	4	0	0	0	0	0	0	0	0	196
23:00	2	88	24	0	1	0	0	0	0	0	0	0	0	115
Day Total	60	9231	1996	34	349	10	0	40	9	4	0	2	0	11735
Percent	0.5%	78.7%	17.0%	0.3%	3.0%	0.1%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	07:00	08:00	07:00	07:00		08:00	05:00	11:00				08:00
Vol.	4	605	145	5	30	2		5	1	2				786
PM Peak	18:00	17:00	17:00	15:00	15:00	13:00		14:00	13:00	15:00		13:00		17:00
Vol.	9	957	176	7	30	3		5	3	1		1		1168
Grand Total	60	9231	1996	34	349	10	0	40	9	4	0	2	0	11735
Percent	0.5%	78.7%	17.0%	0.3%	3.0%	0.1%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Pierce Street
At BNSF Railroad Crossing
24 Hour Directional Volume Count

RIPIBNSF
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start Time	18-Sep-07 Tue	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		4	57			10	44				
12:15		1	69			15	54				
12:30		7	79			19	63				
12:45		5	65	17	270	9	58	53	219	70	489
01:00		3	65			10	64				
01:15		2	73			2	69				
01:30		6	76			6	58				
01:45		2	67	13	281	7	70	25	261	38	542
02:00		3	99			3	64				
02:15		3	78			4	75				
02:30		5	78			5	95				
02:45		1	82	12	337	6	109	18	343	30	680
03:00		2	75			3	117				
03:15		10	82			6	92				
03:30		10	98			0	96				
03:45		8	104	30	359	3	70	12	375	42	734
04:00		26	100			0	92				
04:15		34	100			6	108				
04:30		51	89			6	104				
04:45		60	77	171	366	9	87	21	391	192	757
05:00		49	86			9	117				
05:15		40	118			7	112				
05:30		80	102			14	128				
05:45		56	97	225	403	6	138	36	495	261	898
06:00		56	82			26	113				
06:15		85	89			24	120				
06:30		99	66			34	95				
06:45		111	74	351	311	38	101	122	429	473	740
07:00		220	76			54	109				
07:15		173	75			64	76				
07:30		164	68			56	83				
07:45		180	53	737	272	47	77	221	345	958	617
08:00		146	33			64	67				
08:15		107	40			48	66				
08:30		108	26			47	47				
08:45		109	42	470	141	42	69	201	249	671	390
09:00		64	21			26	55				
09:15		70	30			39	47				
09:30		92	31			41	64				
09:45		80	25	306	107	37	33	143	199	449	306
10:00		61	27			32	49				
10:15		55	16			28	39				
10:30		55	22			41	27				
10:45		64	12	235	77	35	22	136	137	371	214
11:00		54	12			31	26				
11:15		42	13			44	23				
11:30		60	12			30	21				
11:45		70	9	226	46	48	17	153	87	379	133
Total		2793	2970	2793	2970	1141	3530	1141	3530	3934	6500
Combined Total		5763		5763		4671		4671		10434	
AM Peak		07:00				07:15					
Vol.		737				231					
P.H.F.		0.838				0.902					
PM Peak			05:00				05:30				
Vol.			403				499				
P.H.F.			0.854				0.904				
Percentage		48.5%	51.5%			24.4%	75.6%				
ADT/AADT		ADT 10,434		AADT 10,434							

Counts Unlimtied, Inc.
25424 Jaclyn Avenue
Moreno Valley, CA 92557
(951) 247-6716

City of Riverside
Brockton Avenue
At Union Pacific Railroad Crossing
24 Hour Directional Volume Count

RIBRUP
Site Code: 082357C
Date Start: 18-Sep-07
Date End: 18-Sep-07

Start	18-Sep-07	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		9	94			4	118				
12:15		8	131			3	115				
12:30		8	139			5	127				
12:45		5	139	30	503	2	95	14	455	44	958
01:00		8	72			3	76				
01:15		5	142			3	103				
01:30		5	156			2	96				
01:45		0	120	18	490	1	106	9	381	27	871
02:00		5	147			2	99				
02:15		1	128			0	109				
02:30		2	115			1	112				
02:45		1	119	9	509	2	120	5	440	14	949
03:00		2	141			5	114				
03:15		7	154			0	111				
03:30		5	123			5	114				
03:45		5	116	19	534	7	133	17	472	36	1006
04:00		4	**152**			7	156				
04:15		11	**137**			7	109				
04:30		8	**155**			3	**142**				
04:45		16	**125**	39	569	7	**144**	24	551	63	1120
05:00		5	126			17	**159**				
05:15		22	134			17	**175**				
05:30		22	109			21	138				
05:45		24	124	73	493	23	146	78	618	151	1111
06:00		33	98			29	118				
06:15		39	102			35	105				
06:30		45	112			54	85				
06:45		57	90	174	402	55	73	173	381	347	783
07:00		42	105			69	77				
07:15		78	80			74	83				
07:30		119	64			99	63				
07:45		134	68	373	317	83	62	325	285	698	602
08:00		**223**	76			86	58				
08:15		**134**	55			82	54				
08:30		**114**	53			69	55				
08:45		**161**	40	632	224	115	33	352	200	984	424
09:00		114	64			99	34				
09:15		113	59			98	41				
09:30		106	49			70	30				
09:45		98	28	431	200	98	20	365	125	796	325
10:00		106	29			98	28				
10:15		113	24			99	13				
10:30		100	23			96	21				
10:45		89	14	408	90	80	11	373	73	781	163
11:00		130	13			**91**	14				
11:15		148	21			**87**	9				
11:30		97	11			**112**	6				
11:45		144	8	519	53	**108**	5	398	34	917	87
Total		2725	4384	2725	4384	2133	4015	2133	4015	4858	8399
Combined Total		7109		7109		6148		6148		13257	
AM Peak		08:00				11:00					
Vol.		632				398					
P.H.F.		0.709				0.865					
PM Peak			04:00				04:30				
Vol.			569				620				
P.H.F.			0.912				0.886				
Percentage		38.3%	61.7%			34.7%	65.3%				
ADT/AADT		ADT 13,257		AADT 13,257							