

Keystone West Passenger Train Study

Volume 1 of 2

Prepared For:

**Norfolk Southern Corporation
PennDot**

Prepared By:

The Woodside Consulting Group, Inc.

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Table of Contents

	<u>Page No.</u>
I. Introduction.....	1
A. The Keystone West Passenger Train Study.....	1
B. Three Scenarios.....	5
C. NS Routes in the Corridor.....	6
II. Findings.....	10
A. Current Operations in the Corridor.....	10
B. Proposed Additional Infrastructure.....	10
C. Passenger Stations, Pittsburgh-Harrisburg.....	13
III. Conclusions and Recommendations.....	15
IV. Scenario No. 1: Current Operations Case.....	17
A. Scenario No. 1, Scenario Description.....	17
B. Scenario No. 1, Network Results.....	21
C. Scenario No. 1, Results By Corridor.....	25
V. Scenario No. 2: Added Amtrak Trains Case.....	27
A. Scenario No. 2, Scenario Description.....	27
B. Scenario No. 2, Network Results.....	27
C. Scenario No. 2, Results By Corridor.....	29
D. Comparison of Results, Scenarios No. 1 Versus No. 2.....	30
VI. Scenario No. 3: Added Amtrak Trains and NS Infrastructure Case.....	33
A. Scenario No. 3, Scenario Description.....	33
B. Scenario No. 3, Network Results.....	34
C. Scenario No. 3, Results By Corridor.....	36
D. Comparison of Results, Scenarios No. 1 Versus No. 3.....	36

List of Tables

	<u>Page No.</u>
Table 1 – Summary of Trains In Scenario No. 1, Current Operations Case	22
Table 2 – Train Count of Measured Trains By Train Type Scenario No. 1, Current Operations Case	23
Table 3 – Summary of Train Performance By Train Type Scenario No. 1, Current Operations Case	23
Table 4 – Summary of Train Performance By Train Category Scenario No. 1, Current Operations Case	24
Table 5 – Corridor Performance Measurements Scenario No. 1, Current Operations Case	26
Table 6 – Summary of Train Performance By Train Type Scenario No. 2, Added Amtrak Trains Case	28
Table 7 – Summary of Train Performance By Train Category Scenario No. 2, Added Amtrak Trains Case	29
Table 8 – Corridor Performance Measurements Scenario No. 2, Added Amtrak Trains Case	30
Table 9 – Summary of Train Performance By Train Type Comparison of Results, Scenarios No. 1 Versus No. 2	31
Table 10 – Corridor Performance Measurements, Comparison Of Results, Scenarios No. 1 Versus No. 2	32
Table 11 – Summary of Train Performance By Train Type Scenario No. 3, Added Amtrak Trains and NS Infrastructure Case	34
Table 12 – Summary of Train Performance By Train Category Scenario No. 3, Added Amtrak Trains and NS Infrastructure Case	35

List of Tables

	<u>Page No.</u>
Table 13 – Corridor Performance Measurements, Scenario No. 3, Added Amtrak Trains and NS Infrastructure Case	36
Table 14 – Summary of Train Performance By Train Type Comparison of Results, Scenarios No. 1 Versus No. 3	37
Table 15 – Corridor Performance Measurements, Comparison of Results, Scenarios No. 1 Versus No. 3	38

List of Attachments

Volume 1 of 2

- A. RTC Model
 - A-1 Network Schematic, By Corridor
 - A-2 Definition of Output Terms
- B. Proposed Amtrak Train Schedules
- C. Photographic Study of Passenger Stations, Pittsburgh-Harrisburg
- D. Scenario No. 1, Current Operations: Summary Report, Network Statistics, and Train Detail
- E. Scenario No. 1, Current Operations: Summary Reports by Corridor, Statistics, and Train Detail
 - E-1 Pittsburgh Line
 - E-2 Monongahela Line
 - E-3 Port Perry Branch
- F. Scenario No. 1, Current Operations: Stringline Charts; By Corridor:
 - F-1 Pittsburgh Line
 - F-2 Monongahela Line
 - F-3 Port Perry Branch
 - F-4 Pittsburgh Line Detail, CP-Capitol to CP-Banks
- G. Scenario No. 2, Added Amtrak Trains: Summary Report, Network Statistics, and Train Detail
- H. Scenario No. 2, Added Amtrak Trains: Summary Reports by Corridor, Statistics, and Train Detail
 - H-1 Pittsburgh Line
 - H-2 Monongahela Line
 - H-3 Port Perry Branch

List of Attachments

Volume 2 of 2

- I. Scenario No. 2, Added Amtrak Trains: Stringline Charts, By Corridor
 - I-1 Pittsburgh Line
 - I-2 Monongahela Line
 - I-3 Port Perry Branch
 - I-4 Pittsburgh Line Detail, CP-Capitol to CP-Banks
- J. Scenario No. 3: Added Amtrak Trains and NS Infrastructure: Summary Report, Network Statistics, and Train Detail
- K. Scenario No. 3: Added Amtrak Trains and NS Infrastructure: Summary Reports by Corridor, Statistics, and Train Detail
 - K-1 Pittsburgh Line
 - K-2 Monongahela Line
 - K-3 Port Perry Branch
- L. Scenario No. 3, Added Amtrak Trains and NS Infrastructure: Stringline Charts, By Corridor:
 - L-1 Pittsburgh Line
 - L-2 Monongahela Line
 - L-3 Port Perry Branch
 - L-4 Pittsburgh Line Detail, CP-Capitol to CP-Banks
- M. Comparison of Network Statistics, Scenarios Nos. 1-3
- N. Pittsburgh Amtrak Station: Proposed Relocation of Track No. 1
- O. Port Perry Branch: Proposed Double Track
- P. CP-C to CP-MO: Proposed Fourth Main Track
- Q. Harrisburg Yard: Proposed Additional Main Track, CP-Harris to CP-Rockville
- R. Brochure of The Woodside Consulting Group, Inc.

I. **Introduction**

A. **The Keystone West Passenger Train Study**

The Woodside Consulting Group, Inc. ("Woodside") was retained by Norfolk Southern Corporation ("NS") on behalf of PennDot in December 2003 to conduct the Keystone West Passenger Train Study. Woodside's brochure, which outlines our credentials, is contained in Attachment R.

The stated objectives of the Keystone West Passenger Train Study were to:

- Inaugurate Harrisburg-Altoona-Pittsburgh local passenger service that is transparent to current and future (up to a five-year planning horizon, for purposes of this analysis) freight train operations. "Transparency" is defined as a condition where passenger train operations do not interfere with freight train operations, and vice versa;
- Determine the impacts of the proposed passenger service on NS freight service; and
- Identify and estimate the costs of specific NS infrastructure improvements required to mitigate those impacts.

The additional Amtrak passenger train service to be operated in the Harrisburg-Altoona-Pittsburgh Corridor was defined as follows:

- Frequency -- two round trips per day (in addition to passenger trains operating on the Corridor as of April 1, 2002);
- Schedules, originating and terminating times, and stations to be served -- as determined by Amtrak and/or PennDot; and
- Maximum authorized passenger train speeds as currently authorized by NS in the Corridor.

The Keystone West Passenger Study was conducted with consideration of the following standards that have been established by NS for passenger trains operating in the Harrisburg-Altoona-Pittsburgh Corridor:

- Utilization of equipment that conforms to FRA standards, particularly with respect to crashworthiness and ability to withstand impact;
- No delay to freight trains and no deterioration in level of freight service as a result of the presence of passenger trains;

- Each mode paying its own way;
- Improved infrastructure to allow for growth in freight movements, while accommodating two additional daily passenger train round trips;
- Periodic review to determine if additional infrastructure improvements are needed due to changes in freight or passenger markets or traffic patterns;
- Indemnity at a level mutually agreed upon by NS and the operator of passenger rail services; and
- Compensation for use of assets, with the passenger service paying appropriate access fees to use NS track and right-of-way.

In accordance with contractual requirements, the Keystone West Passenger Train Study was performed using the Rail Traffic Controller ("RTC") Model. This computer simulation model is widely used throughout the North American railroad industry, and is generally recognized as the best tool currently available for evaluating railroad line capacity.

Woodside's conduct of the Keystone West Passenger Train Study consisted of the following primary tasks:

- Review of past studies and reports for useful information;
- Collection of NS operating timetables and track charts;
- In-field review of NS dispatcher records at Harrisburg and Pittsburgh;
- In-field interviews with Harrisburg Division and Pittsburgh Division officers;
- In-field inspections with NS Division operations personnel;
- With the approval of the Harrisburg and Pittsburgh Division Superintendents, the selection of a seven-day Study Period: Sunday, December 7, 2003 - Saturday, December 13, 2003;
- Collection of NS train and yard movement data for the selected Study Period; and

- Analyses of the effects of the proposed additional Amtrak passenger train service on NS freight service, both without and with additions to NS's infrastructure.

We note that the Study Period of December 2003 does not reflect NS's reported growth in volume in 2004, of which intermodal traffic has reportedly grown by more than 20% from year 2003 levels.

B. Three Scenarios

The Keystone West Passenger Study consisted of the following three scenarios:

- Scenario No. 1: Current Operations Case
- Scenario No. 2: Added Amtrak Trains Case
- Scenario No. 3: Added Amtrak Trains and NS Infrastructure Case

The primary purpose of Scenario No. 1, the Current Operations Case, was to confirm and validate that the RTC Model provided reasonable representations of both the existing physical railroad network and the NS train operations in the Harrisburg-Altoona-Pittsburgh Corridor.

In Scenario No. 2, the Added Amtrak Trains Case, additional Amtrak passenger trains, consisting of two daily round trips, and faster Amtrak train schedules were superimposed on NS's current operations in the Corridor. The objective was to determine the effects on NS's operations of adding the new Amtrak trains without making any infrastructure improvements.

In Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case, additional NS infrastructure was proposed in an attempt to mitigate the impacts on current NS freight train and Amtrak train operations in the Corridor that were projected to result from the addition of the two daily Amtrak round trips and the faster Amtrak train schedules.

C. NS Routes In The Corridor

NS's passenger train routes in the Pittsburgh-Altoona-Harrisburg Corridor, the location of current and proposed Amtrak train operations, consist of essentially two main tracks from Pittsburgh to Altoona and two main tracks from Altoona to Harrisburg. Usually, both main tracks are equipped with CTC, and crossovers are located relatively frequently at intervals of about 10-15 miles throughout the length of the Corridor. The current and proposed Amtrak trains would operate only on NS's Pittsburgh Line, which extends between and serves the Amtrak station located in downtown Pittsburgh and the Amtrak station located at CP-Harris in Harrisburg.

In the most mountainous territory in the Corridor, between Johnstown (CP-C) and Altoona (Alto), NS's Pittsburgh Line consists generally of triple track with only the middle track equipped with CTC. The Sang Hollow Extension, a third track near Johnstown between CP-Conpit and CP-C, is located on a different right-of-way.

Two parallel NS routes provide additional main line capacity between Pittsburgh and CP-Conpit. The southerly route, the Monongahela Line/Port Perry Branch, lies between a connection with the Pittsburgh Line at CP-Bell (about 15 miles east of NS's Conway Yard) and a connection via the Port Perry Branch with the Pittsburgh Line at Wilmerding (CP-Wing). It provides a parallel route that is used primarily by double stack intermodal trains that cannot be operated over the Pittsburgh Line due to clearance limitations. The northerly route, the Conemaugh Line, lies between CP-Penn (about twenty miles east of Conway Yard) and CP-Conpit (about fifteen miles west of Johnstown), and is used primarily for eastbound loaded coal trains and for some eastbound merchandise trains. Thus, between Pittsburgh and CP-Conpit, these two parallel routes (the Monongahela Line/Port Perry Branch and the Conemaugh Line) provide two, and sometimes three, tracks of additional capacity for NS's train operations in the Pittsburgh-Altoona-Harrisburg Corridor.

Attachment A-1 is a schematic diagram of the RTC Model railroad network developed for this Study, and identifies the several rail corridors comprising the network. Definitions of the RTC Model's output terms are contained in Attachment A-2.

For purposes of the Keystone West Passenger Train Study, we defined the following three NS corridors for detailed analyses:

- Pittsburgh Line: CP-Capitol (HP 111.3) to CP-West Conway (PC 24.5);
- Monongahela Line: CP-Bell (ML 0.0) to CP-16 (ML 16.1) junction with the Port Perry Branch; and
- Port Perry Branch: CP-Wing (JP 0.0) at the Pittsburgh Line junction to CP-16 (JP 2.9) at the Monongahela Line junction (JP 2.9).

This Report provides the results for Scenarios Nos. 1, 2, and 3 in accordance with the above corridor definitions. In reviewing the results by corridor, however, we suggest that the following factors be considered:

- Most trains operated in more than one corridor. For that reason, it is impossible to either total or average all of the corridor performance measurements. Overall performance can be assessed only at the network levels for each of the three scenarios.

- The corridor train counts and performance measures include all trains that traversed any part of that corridor, which may be very short distances in some instances.
- Corridor delay ratios are not necessarily the same (or inverse) rank order as corridor average speeds.
- Analysis of the stringline charts in addition to the statistical results is essential to understanding the train performance in any corridor.

II. Findings

A. Current Operations in The Corridor

NS's Harrisburg-Altoona-Pittsburgh Corridor is one of the heaviest density lines in NS's system network. Daily train counts averaged 104 trains during the seven-day Study Period, with higher volumes on peak days and lower volumes on off-peak days.

NS operates a wide mix of Amtrak, intermodal, merchandise, and coal trains having varying train schedule priorities with differing maximum authorized speeds. Most loaded NS freight trains are long and heavy, extending up to two miles in length with maximum tonnages approaching 20,000 tons per train. The challenge in this partially mountainous corridor is to dispatch and operate on schedule the entire mix of high speed and high priority passenger trains at maximum speeds of up to 79 mph, long, relatively heavy intermodal trains (NS's highest priority freight trains) at maximum speeds of 60 mph, and a range of heavy merchandise and loaded coal trains operating as slowly as 10 mph on heavy grades.

B. Proposed Additional Infrastructure

Scenario No. 2, the "Added Amtrak Trains Case," simulates railroad operations in the Harrisburg-Altoona-Pittsburgh Corridor with the addition of the two proposed daily Amtrak train round trips as well as faster Amtrak schedules. These proposed new Amtrak train schedules, as well as adjustments to existing train schedules, were prepared by Amtrak and PennDot and are contained in Attachment B.

After analyzing the critical locations of Amtrak train conflicts, as shown by the results of the RTC Model in Scenario No. 2, we conceived the following four infrastructure improvements that appeared likely to mitigate the most adverse effects of the proposed new and modified Amtrak train schedules:

- Addition of a new track inside the Pittsburgh Amtrak station that would permit freight trains to bypass Amtrak trains that were loading or unloading passengers, at an estimated cost of \$3.2 million (see Attachment N);
- Double tracking the Port Perry Branch in order to create a full double track bypass route around the Pittsburgh Amtrak station and the Pittsburgh Line, extending from a point north and west of downtown Pittsburgh, at CP Bell, to the junction of the Monongahela and Pittsburgh Lines, at CP Wing, at an estimated cost of \$28.1 million (see Attachment O);
- Addition of a fourth main track on the heavy grade between CP-C at Johnstown and CP-MO near Cresson in order to provide two tracks for fast Amtrak and intermodal trains and two tracks for slower merchandise and coal trains, at an estimated cost of \$66.5 million (see Attachment P); and

- Construction of an additional main track between CP-Harris at the Harrisburg Amtrak station and CP-Rockville in the Harrisburg Terminal that would permit Amtrak trains to bypass the congestion at both Harrisburg Yard and the Harrisburg fueling facility, at an estimated cost of \$13.1 million (see Attachment Q).

The total cost of these four infrastructure improvements is estimated at \$110.9 million. Attachments N, O, P, and Q provide more detailed discussions of each infrastructure improvement as well as detailed explanations of the cost estimates.

In Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case, we modified the RTC Model network in order to reflect the recommended infrastructure improvements. The results of the RTC Model show that the additional infrastructure in Scenario No. 3 was generally successful in mitigating the negative impacts of the additional new and modified Amtrak train schedules in Scenarios Nos. 2 and 3. Stated differently, with the additional NS infrastructure, the network performance in Scenario No. 3 was about equal to the network performance in Scenario No. 1, the Current Operations Case.

Attachment M provides a "Comparison of Network Statistics" for Scenarios Nos. 1, 2, and 3. As shown, for all trains in the aggregate, and for NS's non-expedited Freight trains viewed separately, average speeds were higher and meet-pass delay percents and

delay per 100 train miles were lower in Scenario No. 3 versus both Scenarios Nos. 1 and 2. For NS's Expedited Freight trains, average speeds were comparable in Scenario No. 3 and Scenario No. 1, despite increases in the meet-pass delay percent and in minutes of delay per 100 train miles. For Amtrak trains, average speeds increased in Scenario No. 3 as compared with Scenario No. 1, despite increases in the meet-pass delay percent and minutes of delay per 100 train miles.

C. Passenger Stations, Pittsburgh-Harrisburg

Amtrak trains operating in the Harrisburg-Altoona-Pittsburgh Corridor serve nine stations, including Harrisburg and Pittsburgh. A photographic study of these passenger stations is contained in Attachment C.

As shown by the photographs in Attachment C, six of the passenger stations are served only from NS's Main Track No. 2, and the Pittsburgh Amtrak station is served only from Main Track No. 1. Both the Harrisburg passenger station, which is not located on NS's main tracks, and the Greensburg station can be served from both Main Tracks Nos. 1 and 2.

In general, NS operates its trains in accordance with the right-hand running rule; i.e., west of Harrisburg eastbound trains operate on Main Track No. 1 and westbound trains operate on Main Track No. 2. Thus, to permit passenger loading and unloading at the six stations that are located on Main Track No. 2 (i.e., Latrobe, Johnstown, Altoona,

Tyrone, Huntingdon, and Lewistown), eastbound Amtrak trains must be crossed over and operated against the general right-hand rule flow of traffic over portions of their routes. We found that, in order to serve the six stations that are located on Main Track No. 2, eastbound Amtrak trains usually must operate against the right-hand rule flow of traffic between Latrobe and CP-C at Johnstown, between CP-Slope at Altoona and CP-Hunt at Huntingdon, and between CP-Long at Lewistown and CP-Mifflin. Such crisscrossing Amtrak train movements cause interference with the smooth flow of train movements and result in train delays, as well as in slower speeds while either Amtrak or NS freight trains navigate through the crossovers.

To minimize delays to all trains while serving passenger stations in the heavy density Harrisburg-Altoona-Pittsburgh Corridor, we recommend that all stations should be made accessible via ADA-compliant pedestrian overpasses or tunnels from both NS Main Tracks No. 1 and No. 2. A photograph of a typical ADA-compliant passenger overpass, at Bayshore, California, in the San Francisco-San Jose commuter service corridor, is shown in Photo No. 19 on page 10 of Attachment C.

III. Conclusions and Recommendations

Based on our analyses, it is our conclusion that NS does not have available sufficient capacity to permit it to handle additional Amtrak trains as the highest priority trains to be operated in the Corridor without degrading the performance of its freight trains between Harrisburg and Pittsburgh, unless the additional infrastructure that we have recommended is added. With the additional infrastructure improvements that we have recommended, at an estimated cost of \$110.9 million, the effects on NS's freight train operations of operating the proposed new and modified Amtrak train schedules can be mitigated in the aggregate, although adverse effects remain for some NS freight trains.

Assuming the additional NS infrastructure that we have recommended were added, it is our opinion that the NS freight train operations on the Pittsburgh Line, Monongahela Line, and the Port Perry Branch would not be adversely affected by the operation of the additional and higher speed Amtrak trains. As a review of the stringline charts will show, NS operations on the Monongahela Line would be improved as double-tracking of the Port Perry Branch would reduce delays at CP-16 and at CP-Wing, and the addition of a fourth track on NS's heavy grade between CP-C and CP-MO would improve train movements between those points. Moreover, the addition of the proposed Amtrak "bypass track" in the Harrisburg Terminal improves the fluidity of train movements in that location, even though trains moving between Enola Yard and CP-Capitol or CP-Paxton may still be delayed because of engineering restrictions that

prevent extension of the proposed bypass track from CP-Rockville across the Rockville Bridge to the entrance to Enola Yard at CP-Mary.

As we see it, there are two alternatives for operating additional Amtrak trains with faster schedules with "transparency" in the Harrisburg-Altoona-Pittsburgh Corridor. The first is to add to NS's infrastructure, most likely through the construction of additional main tracks at critical locations in the Corridor, as we have recommended.⁶

An alternative approach would be to reduce the maximum authorized speeds, train schedules, and train priorities of Amtrak trains to levels that are equal to NS's highest priority intermodal freight trains. From our analyses of the RTC Model results, we would expect such an approach to reduce the increment of additional track capacity required by the Amtrak trains, thereby permitting them to "fit" more readily into the NS train flows moving through the Harrisburg-Altoona-Pittsburg Corridor. Although we have not modeled such a change in Amtrak train speeds, schedules and priorities, we recommend this approach for consideration by both PennDot and NS.

Whichever alternative approach is selected, we recommend that all the affected parties (i.e., Amtrak, PennDot, NS, and the cities where the stations of Latrobe, Johnstown, Altoona, Tyrone, Huntingdon, and Lewistown are located) plan for and construct ADA-compliant passenger overpasses or underpasses that would make both Main Tracks No. 1 and No. 2 available for the loading and unloading of passenger trains.

IV. Scenario No. 1: Current Operations Case

A. Scenario No. 1, Scenario Description

The primary purpose of Scenario No. 1, the Current Operations Case, was to confirm and validate that the RTC Model provided reasonable representations of both the existing physical railroad network and the NS train operations in the Harrisburg-Altoona-Pittsburgh Corridor.

Calibration and validation of the Scenario No. 1 Current Operations Case involved the following three steps:

- Validation of the simulated physical railroad network;
- Calibration of the train and yard data files; and
- Calibration and validation of the Scenario No. 1 results, through multiple simulation runs of the RTC Model.

Validation of the simulated physical railroad network that we defined for Scenario No. 1 involved the following tasks:

- Review of the simulated physical railroad network, as defined in the RTC Model, against NS timetables and track charts;

- Integration of curve and grade data provided by NS with elevation data derived from USGS topographic maps;
- In-field inspections and resolution of issues concerning the definition of the simulated physical railroad network; and
- Discussion with NS operations personnel of issues at selected locations in order to accurately reflect in the RTC Model simulated network the actual physical rail network in the Study Area.

As a result of this process, it is our opinion that the simulated railroad network defined in the RTC Model reflects with reasonable accuracy the actual physical railroad network in the Study Area.

Detailed train data files were provided to us by NS. From these data, a composite train file was constructed for use in the RTC Model through the following steps:

- Correction of numerous incomplete and/or inaccurate train data records;
- and

- Creation of a yard and local train file based on dispatcher train sheet data, yard and local train schedules, and interviews with local NS operations personnel.

Calibration and validation of the RTC Model results for the Scenario No. 1

Current Operations Case involved the following principal tasks:

- Resolution of the numerous definitional issues raised by the RTC Model, (e.g., inadequate locomotive power, unreasonable train lengths and/or train weights, insufficient siding lengths to accommodate trains, and inadequate times remaining on-duty for designated crews to operate trains to their termini);
- Assurance, through comparison with the original NS train file documents, that all trains and yard assignments were included in the train file used in the RTC Model;
- Adjustment of the RTC Model's simulated train times to actual train times reported in NS's data base by including, as appropriate, dwell times for work enroute, yard delays, and, so long as congestion enroute was not observed, actual departure times at intermediate stations;

- Adjustment of simulated passing times to better replicate (within about 15 minutes) actual train times at selected key NS network locations;
- Ensurance, through review of the stringline charts and use of the RTC Model's animation capability, that all trains and yard assignments were properly routed over the RTC Model network;
- Production and review of numerous (30 or more) RTC Model simulation runs for the Scenario No. 1 Current Operations Case as adjustments were made to ensure the reasonableness of the RTC Model's results; and
- Detailed review, adjustment, and re-review of the realism and accuracy of the RTC Model stringline diagrams and statistical results for the Scenario No. 1 Current Operations Case network as a whole, as well as for each of the three corridors defined above.

As a result of this exhaustive and iterative process, it is our opinion that the Scenario No. 1 Current Operations Case RTC Model results that are provided in this Report are a reasonably accurate portrayal of train operations over NS's rail network between Harrisburg and Pittsburgh during the seven-day Study Period.

The RTC Model successfully dispatched all trains in the Harrisburg-Altoona-Pittsburgh Corridor in Scenario No. 1. Although a large number of different runs of the RTC Model were required to produce the RTC Model simulation results that replicate actual NS operations during the Study Period, all train conflicts were successfully resolved as part of the calibration and validation process. It is our opinion that the difficulty we experienced in conforming the RTC Model's results to NS's actual operations provides unspoken testimony as to the complexity of NS's train operations in the Harrisburg-Altoona-Pittsburgh Corridor and the limitations of that network's track capacity to handle high volumes of trains of varying types, weights, and speeds.

B. Scenario No. 1, Network Results

Scenario No. 1, the Current Operations Case, includes an RTC Model rail network consisting of 1,006 track miles, 6,470 links, 3,152 nodes and a train file of 898 trains. This is a large number of trains, amounting to about one-half of the total trains considered in the Chicago Rail Improvements Study of November 2003. All of these Scenario No. 1 trains were successfully dispatched by the RTC Model, with conflicts resolved as part of the calibration and validation process.

Of the total of 898 trains, the RTC Model measured the performance only of the 732 trains that completed their runs over the RTC network within the simulated seven-day study period (i.e., 12:00 a.m. on Sunday, December 7, 2003, and 11:59 p.m. on

Saturday, December 13, 2003). The remaining 166 trains started and/or completed their runs outside the study period.

Table 1 below summarizes all trains in the Current Operations Case and the numbers that either are included in or excluded from both the RTC measurements the output reports contained in the Attachments:

Table 1			
Summary of Trains In Scenario No. 1, Current Operations Case			
	Total	Measured in RTC	Not Included In Output Reports
Amtrak Trains	54	42	12
Freight Trains	844	690	154
Totals	898	732	166

The remainder of this discussion of the network results and corresponding analyses of Scenario No. 1, the Current Operations Case, is based on the performance statistics for only those Amtrak and freight trains that were measured by the RTC Model.

The 732 measured Amtrak and NS freight trains are categorized by train type in Table 2 below:

Amtrak	42
Premium Intermodal	69
Intermodal	123
Triple Crown	18
Multi-level	24
Auto Parts	6
General Merchandise	199
Foreign Merchandise	10
Coal	139
Unit	10
Locals	85
Work Trains	7
Total	732

Table 3 below summarizes the total network performance for the Scenario No. 1

Amtrak and freight trains by train type over the seven-day study period:

Train Type	Number of Trains	Average Speed (mph)	Meet-Pass Delay Percent
Amtrak	42	37.8	0.3
Premium Intermodal	69	32.7	1.9
Intermodal	123	27.9	2.0
Triple Crown	18	34.6	1.3
Multi-level	24	26.8	3.0
Auto Parts	6	31.1	3.5
General Merchandise	199	21.7	3.4
Foreign Merchandise	10	5.8	2.8
Coal	139	18.8	4.2
Unit	10	22.9	2.7
Locals	85	11.8	5.9
Work Trains	7	23.5	11.9
Totals/Average	732	24.3	2.9

As shown above, the composite average speed for all Amtrak and freight trains was 24.3 mph and the composite average Meet-Pass Delay Percent was 2.9%. For the 110,504 train miles operated during the seven-day study period, the Average Delay per 100 Train Miles was 5.33 minutes.

Table 4 below provides a similar summary of train performance by category of train for Scenario 1, the Current Operations Case, with train types aggregated into the three categories of Amtrak, Expedited Freight (intermodal, multi-level, and auto parts), and Other Freight trains:

Table 4 Summary of Train Performance By Train Category Scenario No. 1, Current Operations Case				
Train Category	Number of Trains	Average Speed (mph)	Meet-Pass Delay Percent	Minutes of True Delay Per 100 Train Miles
Amtrak	42	37.8	0.3	0.3
Expedited Freight	240	29.9	2.1	3.4
Other Freight	450	19.4	4.0	8.2
Totals/Average	732	24.3	2.9	5.3

As can be calculated from Attachment D, Total Delay Time (the sum of the Total Dwell plus Waiting on Schedule plus Switch Delay plus True Delay times) for all trains in Scenario No. 1, the Current Operations Case, equaled 52 days, 5 hours, and 43 minutes. This amounted to about 27.5 percent of the Total Elapsed Time for all train

movements across the RTC network. Total Delay Time includes holding trains in yards because of a lack of yard capacity, holding trains out of yards, holding trains for crews and/or power, and delays for work enroute. In contrast, True Delay, which is the delay only from meets and passes, is a significantly lesser 7.8 percent of Total Delay and 2.2 percent of Total Elapsed Time for Scenario No.1, the Current Operations Case.

C. **Scenario No. 1, Results By Corridor**

Current Operations Case output reports for the three corridors most relevant to the Keystone West Passenger Train Study that were described earlier in this Report are provided in the Attachments. The schematic diagram of the RTC Model network included in Attachment A-1 shows these three corridors and others that were defined in the RTC Model by distinct color codes for the geographic limits of each corridor. Copies of the Scenario No. 1, Current Operations Case, Summary Statistics and Train Statistics for each of the three corridors are included in Attachment E, and stringline charts for each corridor are contained in Attachment F. Because of the complexity of train operations in the Harrisburg Terminal, enlarged stringline charts for the portion of the Pittsburgh Line corridor between CP-Capitol and CP-Banks are included as Attachment F-4.

Performance measurements for each corridor are summarized in Table 5 below:

Table 5 Corridor Performance Measurements Scenario No. 1, Current Operations Case				
Corridor Name	Train Count	Average Speed (mph)	Meet-Pass Delay Percent	Minutes of True Delay Per 100 Train Miles
Pittsburgh Line	728	29.5	2.9	4.7
Monongahela Line	303	15.2	10.3	25.3
Port Perry Branch	185	7.1	3.0	14.2

V. **Scenario No. 2: Added Amtrak Trains Case**

A. **Scenario No. 2, Scenario Description**

In Scenario No. 2, the Added Amtrak Trains Case, additional Amtrak passenger trains, consisting of two daily round trips, and some schedule modifications to the existing Amtrak passenger trains were superimposed on NS's current operations in the Corridor. The "Proposed Amtrak Train Schedules," provided to us by Amtrak, are shown in Attachment B.

In Scenario No. 2, the physical railroad network was assumed to be identical to that of Scenario No. 1. The RTC Model was then used to identify the impacts on NS's freight trains of the additional and faster Amtrak trains in Scenario No. 2 and those results were compared with Scenario No. 1.

B. **Scenario No. 2, Network Results**

Scenario No. 2, the Added Amtrak Trains Case, had 760 measured trains in the seven-day study period, an increase of 28 Amtrak trains (four per day) from the 732 measured trains in Scenario No. 1. A Summary Report for the Scenario No. 2 entire network is in Attachment G. Table 6 below summarizes the Scenario No. 2 total network performance by train type. The 760 measured Amtrak and NS freight trains had a composite average speed of 24.9 mph and a composite average Meet-Pass Delay of 3.3%, as shown in Table 6:

Table 6
Summary of Train Performance By Train Type
Scenario No. 2, Added Amtrak Trains Case

Train Type	Number of Trains	Average Speed (mph)	Meet-Pass Delay Percent
Amtrak	70	41.2	0.4
Premium Intermodal	69	32.4	2.2
Intermodal	123	27.6	3.0
Triple Crown	18	34.5	1.4
Multi-level	24	26.5	4.0
Auto Parts	6	31.3	2.4
General Merchandise	199	21.6	3.9
Foreign Merchandise	10	5.8	3.9
Coal	139	18.7	4.5
Unit	10	23.1	1.5
Locals	85	11.7	5.3
Work Trains	7	22.9	15.5
Totals/Average	760	24.9	3.3

For the 117,498 train miles operated during the seven-day study period, the Average Delay per 100 Train Miles was 5.78 minutes.

Table 7 below provides a similar summary of Train Performance By Category of Train for Scenario No. 2, the Added Amtrak Trains Case, using Amtrak, Expedited Freight (intermodal, multi-level, and auto parts), and Other Freight trains as the train categories:

Table 7 Summary of Train Performance By Train Category Scenario No. 2, Added Amtrak Trains Case				
Train Category	Number of Trains	Average Speed (mph)	Meet-Pass Delay Percent	Minutes of True Delay Per 100 Train Miles
Amtrak	70	41.2	0.4	0.4
Expedited Freight	240	29.7	2.7	4.4
Other Freight	450	19.3	4.3	8.8
Totals/Average	760	24.9	3.3	5.8

As can be calculated from Attachment G, Total Delay Time equaled 54 days, 3 hours, and 22 minutes. This amounted to about 27.5 percent of the Total Elapsed Time for Scenario No. 2, the Added Amtrak Trains Case, the same percentage as for Scenario No. 1, the Current Operations Case. In contrast, True Delay was 8.7 percent of Total Delay and 2.4 percent of Total Elapsed Time. Both of these percentages were higher in Scenario No. 2, the Added Amtrak Trains Case, than in Scenario No. 1, the Current Operations Case.

C. Scenario No. 2, Results By Corridor

Summary Statistics and Train Statistics for the three relevant corridors in Scenario No. 2, the Added Amtrak Trains Case, are included in Attachment H. Stringline charts for each Corridor are contained in Attachment I, including enlarged stringlines for that portion of the Pittsburgh Line between CP-Capitol and CP-Banks.

The Scenario No. 2 performance measurements for each of the three corridors are summarized in Table 8, below:

Table 8 Corridor Performance Measurements Scenario No. 2, Added Amtrak Trains Case				
Corridor Name	Train Count	Average Speed (mph)	Meet-Pass Delay Percent	Minutes of True Delay Per 100 Train Miles
Pittsburgh Line	756	30.1	3.3	5.4
Monongahela Line	303	15.2	10.5	25.7
Port Perry Branch	185	7.2	2.3	10.6

D. Comparison of Results, Scenarios No. 1 Versus No. 2

Table 9 below compares the total network freight train performance for Scenario No. 2, the Added Amtrak Trains Case, with Scenario No. 1, the Current Operations Case, for the seven-day study period:

Table 9				
Summary of Train Performance By Train Type				
Comparison of Results, Scenarios No. 1 Versus No. 2				
Train Type	Average Speed (mph)		Meet-Pass Delay Percent	
	No. 1	No. 2	No. 1	No. 2
Amtrak	37.8	41.2	0.3	0.4
Premium Intermodal	32.7	32.4	1.9	2.2
Intermodal	27.9	27.6	2.0	3.0
Triple Crown	34.6	34.5	1.3	1.4
Multi-level	26.8	26.5	3.0	4.0
Auto Parts	31.1	31.3	3.5	2.4
Average, Expedited	29.9	29.7	2.1	2.7
General Merchandise	21.7	21.6	3.4	3.9
Foreign Merchandise	5.8	5.8	2.8	3.9
Coal	18.8	18.7	4.2	4.5
Unit	22.9	23.1	2.7	1.5
Locals	11.8	11.7	5.9	5.3
Work Trains	23.5	22.9	11.9	15.5
Average, Other Freight	19.4	19.3	4.0	4.3
Average, All Trains	24.3	24.9	2.9	3.3

As shown above, the performance of Amtrak trains improved from Scenario No. 1 to Scenario No. 2, consistent with the faster schedules in Scenario No. 2. Average speed for Amtrak trains increased significantly from 37.8 mph to 41.2 mph, with little change in their Meet-Pass Delay Percent. However, performance of both NS's Expedited Freight trains and Other Freight trains deteriorated somewhat in the face of the larger number of faster Amtrak trains, as Expedited Freight and Other Freight train speeds decreased from 29.9 mph to 29.7 mph and from 19.4 mph to 19.3 mph, respectively, because of increased meet-pass delays. Similarly, Average Delay per 100 Train Miles for Expedited Freight

trains and Other Freight trains increased from 3.40 minutes to 4.44 minutes, and from 8.19 minutes to 8.83 minutes, respectively, from Scenario No. 1, the Current Operations Case, to Scenario No. 2, the Added Amtrak Trains Case. In the aggregate, NS's freight trains experienced an increase of 14 hours and 31 minutes of meet-pass train delay because of the increased number of faster moving Amtrak trains.

The summary performance measurements for each corridor are compared for Scenario No. 1, the Current Operations Case, versus Scenario No. 2, the Added Amtrak Trains Case, in Table 10 below:

Corridor Name	Train Count		Meet-Pass Delay Percent		Minutes of True Delay Per 100 Miles	
	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2
Pittsburgh Line	728	756	2.9	3.3	4.7	5.4
Monongahela Line	303	303	10.3	10.5	25.3	25.7
Port Perry Branch	185	185	3.0	2.3	14.2	10.6

Based on our analyses of the results of Scenarios Nos. 1 and 2, it is our opinion that train operations on the Pittsburgh Line would be adversely affected by the additional and higher speed Amtrak trains. However, there are no adverse impacts on either the Monongahela Line or the Port Perry Branch shown by our analyses.

VI. Scenario No. 3: Added Amtrak Trains and NS Infrastructure Case

A. Scenario No. 3, Scenario Description

In Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case, additional NS infrastructure was proposed in an attempt to mitigate the impacts on current NS freight train and Amtrak train operations in the Corridor that were projected to result from the addition of two daily Amtrak round trips. As a result, the RTC Model rail network increased to 1,037 track miles, 6,768 links, and 3,152 nodes. The train file remained the same as in Scenario No. 2, with 760 measured trains in the seven-day study period.

In Scenario No. 3, we proposed and evaluated (using the RTC Model) the following four infrastructure improvements that have been described earlier in this Report:

- A new third main track between CP-Harris and CP-Rockville through the Harrisburg Terminal;
- A new fourth main track between CP-C, near Johnstown, and CP-MO, near Cresson;

- A new second main track on the Port Perry Branch between Wilmerding (CP-Wing) and NS's Monongahela Line at CP-16, a point north of Duquesne in the Pittsburgh area; and
- A new "Bypass Track" through the Pittsburgh Amtrak station.

B. Scenario No. 3. Network Results

A Summary Report of the results for Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case, is in Attachment J. Table 11 below summarizes the Scenario No. 3 total network performance by train type over the seven-day study period. The 760 measured Amtrak and NS freight trains had a composite average speed of 25.2 mph and a composite average Meet-Pass Delay of 2.7%, as shown in Table 11:

Table 11 Summary of Train Performance By Train Type Scenario No. 3, Added Amtrak Trains and NS Infrastructure Case			
Train Type	Number of Trains	Average Speed (mph)	Meet-Pass Delay Percent
Amtrak	70	41.1	0.5
Premium Intermodal	69	32.9	1.7
Intermodal	123	28.2	2.8
Triple Crown	18	31.3	1.0
Multi-level	24	27.3	2.1
Auto Parts	6	31.1	4.1
General Merchandise	199	21.8	3.5
Foreign Merchandise	10	5.8	3.5
Coal	139	19.2	3.0
Unit	10	23.1	1.3
Locals	85	11.8	5.1
Work Trains	7	25.9	9.4
Totals/Average	760	25.2	2.7

For the 117,557 train miles operated during the seven-day study period, the Average Delay per 100 Train Miles was 4.75 minutes.

Table 12 below provides a similar summary of Scenario No. 3 train performance by train category:

Train Category	Number of Trains	Average Speed (mph)	Meet-Pass Delay Percent	Minutes of True Delay Per 100 Train Miles
Amtrak	70	41.1	0.5	0.6
Expedited Freight	240	29.9	2.3	3.7
Other Freight	450	19.6	3.5	7.1
Totals/Average	760	25.2	2.7	4.7

As can be calculated from Attachment J, Total Delay Time equaled 53 days, 6 hours, and 42 minutes. This amounted to about 27.3 percent of the Total Elapsed Time for Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case. In contrast, True Delay was 7.3 percent of Total Delay and 2.0 percent of Total Elapsed Time. Both of these percentages were lower than in Scenario No. 2, the Added Amtrak Trains Case, and Scenario No. 1, the Current Operations Case.

C. Scenario No. 3, Results By Corridor

Summary Statistics and Train Statistics for the three relevant corridors in Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case, are included in Attachment K. Stringline charts for each Corridor are contained in Attachment L, including enlarged stringlines for that portion of the Pittsburgh Line between CP-Capitol and CP-Banks.

The Scenario No. 3 performance measurements for each of the three corridors are summarized in Table 13 below:

Corridor Name	Train Count	Average Speed (mph)	Meet-Pass Delay Percent	Minutes of True Delay Per 100 Train Miles
Pittsburgh Line	756	30.2	2.5	4.1
Monongahela Line	303	16.8	3.6	8.7
Port Perry Branch	184	7.2	2.0	9.3

D. Comparison of Results, Scenarios No. 1 Versus No. 3

Table 14 below compares the total network freight train performance for Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case, with Scenario No. 1, the Current Operations Case, for the seven-day study period:

Table 14				
Summary of Train Performance By Train Type				
- Comparison of Results, Scenarios No. 1 Versus No. 3				
Train Type	Average Speed (mph)		Meet-Pass Delay Percent	
	No. 1	No. 3	No. 1	No. 3
Amtrak	37.8	41.1	0.3	0.5
Premium Intermodal	32.7	32.9	1.9	1.7
Intermodal	27.9	28.2	2.0	2.8
Triple Crown	34.6	31.3	1.3	1.0
Multi-level	26.8	27.3	3.0	2.1
Auto Parts	31.1	31.1	3.5	4.1
Average, Expedited	29.9	29.9	2.1	2.3
General Merchandise	21.7	21.8	3.4	3.5
Foreign Merchandise	5.8	5.8	2.8	3.5
Coal	18.8	19.2	4.2	3.0
Unit	22.9	23.1	2.7	1.3
Locals	11.8	11.8	5.9	5.1
Work Trains	23.5	25.9	11.9	9.4
Average, Other Freight	19.4	19.6	4.0	3.5
Average, All Trains	24.3	25.2	2.9	2.7

As shown above, the performance of Amtrak trains in Scenario No. 3 improved compared with Scenario No. 1, as their average speed increased significantly from 37.8 mph to 41.1 mph with little change in their Meet-Pass Delay Percent. Again, this is consistent with the faster Amtrak schedules in Scenario No. 3. Performance of NS's Expedited Freight trains was basically unchanged in the aggregate, even though the average speeds of most types of trains increased. Similarly, the performance of NS's Other Freight trains improved, as aggregate train speeds increased from 19.4 mph to 19.6 mph, and no train type experienced slower average speeds.

As shown by Attachment M, Average True Delay per 100 Train Miles for Expedited Freight trains increased from 3.40 minutes to 3.69 minutes in Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case, but decreased for Other Freight trains from 8.19 minutes to 7.15 minutes, from Scenario No. 1, the Current Operations Case. In Scenario No. 3, compared with Scenario No. 1, NS's freight trains in the aggregate experienced a reduction of 5 hours and 55 minutes of meet-pass train delay because of the added infrastructure, despite the larger number of faster moving Amtrak trains.

The summary performance measurements for each corridor are compared for Scenario No. 1, the Current Operations Case, versus Scenario No. 3, the Added Amtrak Trains and NS Infrastructure Case, in Table 15 below:

Corridor Name	Train Count		Meet-Pass Delay Percent		Minutes of True Delay Per 100 Miles	
	No. 1	No. 3	No. 1	No. 3	No. 1	No. 3
Pittsburgh Line	728	756	2.9	2.5	4.7	4.1
Monongahela Line	303	303	10.3	3.6	25.3	8.7
Port Perry Branch	185	184	3.0	2.0	14.2	9.3

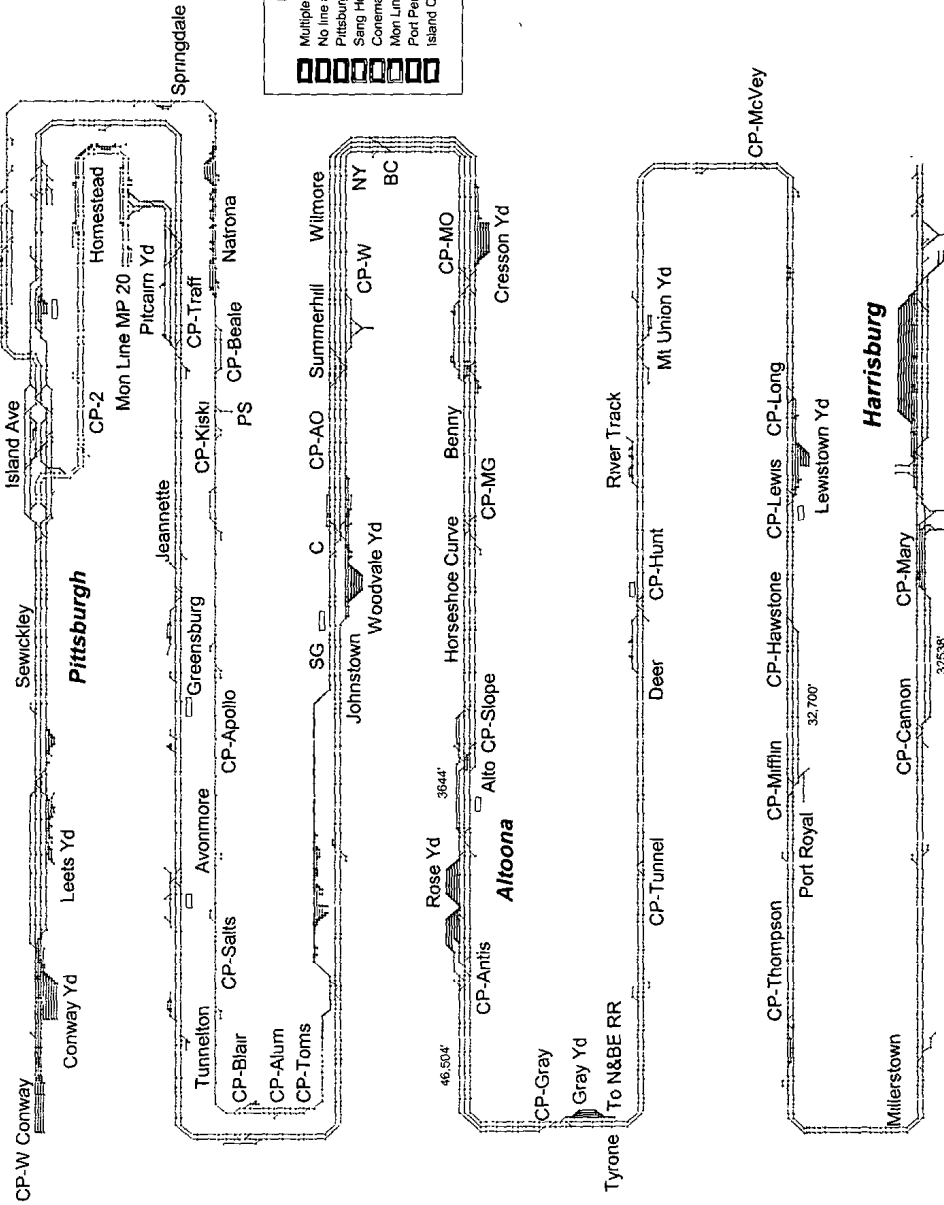
Based on our analyses of the results of Scenarios No. 1 and 3, it is our opinion that, assuming the additional NS infrastructure that we have recommended were added,

NS freight train operations on the Pittsburgh Line, Monongahela Line, and the Port Perry Branch would not be adversely affected by the operation of the additional and higher speed Amtrak trains. As a review of the stringline charts will show, NS operations on the Monongahela Line would be improved, as double-tracking of the Port Perry Branch would reduce delays at CP-16 and at CP-Wing, and the addition of a fourth track on NS's heavy grade between CP-C and CP-MO would improve train movements between those points. Moreover, the addition of the Amtrak bypass track in Harrisburg Terminal would improve the fluidity of train movements in that location, even though trains moving between Enola Yard and CP-Capitol or CP-Paxton may still be delayed because engineering restrictions prevent extension of the bypass-track from CP-Rockville across the Rockville Bridge to the entrance of Enola Yard at CP-Mary.

Attachment A-1

Keystone West Rail Capacity Study

Scenario 3



Attachment A-2

Attachment P

Definition of RTC Model Output Terms

The terms in the RTC output reports are defined as follows:

Run Time Train Count:	The number of trains that completed their trip within the 7 day (168 hours) simulation Study Period.
Average Speed with Dwell Time:	Average speed calculated from the time the train is offered for movement at the initial location, until it completes its RTC movement. Any intermediate dwell time or waiting on schedule time is figured into the average speed; any initial terminal delay within a yard is not, but if a train were ready to depart at an initial yard, and was then held or delayed because of congestion, that delay is included.
Meet-Pass Delay Percent:	100 times True Delay Time divided by (Total Elapsed Run Time minus True Delay Time minus Total Dwell Time minus Wait on Schedule Time).
Total Dwell Time:	Time spent stopped at an intermediate point, usually calculated by RTC when a specific length of stop is input. The Model will protect the desired duration of the stop regardless of whether the train is early or late on a schedule, if the train has a schedule.
Wait on Schedule Time:	Time spent stopped at an intermediate point, usually calculated by RTC when a specific departure time is entered. That is, RTC computes whatever time elapsed from arrival to the specified departure time, after having completed its minimum dwell time.
Stop Delay or True Delay Time:	This is actual meet/pass delay accumulated from conflicts between trains on-line. True Delay includes the acceleration and deceleration time required to make a meet or pass, but Stop Delay includes only the time actually spent at 0 speed. In calculating performance over Corridors, where only a portion of a train's run is measured, RTC cannot compile True Delay - it requires the entire train run to do this. Hence, the separate definition.
Entry Delay:	Time held out of the network that is included in delay times.
Total Elapsed Time:	The sum of Run, Dwell, Wait on Schedule, and True Delay times.
Total Train Miles:	RTC train miles for the relevant lines, line segments, or Corridors.
Delay Minutes per 100 Train Miles:	A delay ratio that divides True Delay by train miles.

Attachment P

Definition of RTC Model Output Terms

The following additional term appears in the detailed statistics by Corridor that are included in Attachment F:

<u>Simulated Run Time:</u>	Ideal Run time plus True Delay. Simulated Run time includes Dwell and Waiting on Schedule times.

**KEYSTONE WEST PROJECT
Test Schedule - Version 2**

30 Fr CHI Daily	Read Down				Mile	Station	45 New Daily	Read Up				
	42 Daily	40 Fr CHI Daily	44 New Daily	46 Daily				47 (607) Daily	43 (2hr later) Daily	41 To CHI Daily	29 To CHI Daily	
4:41A	7:30A	10:00A	2:00P	5:30P	444	PITTSBURGH, PA	Ar	2:00P	6:00P	10:30P	12:58A	
	8:11A	10:43A	2:41P	6:11P	"	Greensburg, PA	"	10:12A	12:52P	9:28P		
	8:21A	10:54A	2:51P	6:21P	"	Larrobe, PA	"	10:01A	12:41P	9:16P		
	9:04A	11:37A	3:34P	7:04P	"	Johnstown, PA	"	9:21A	12:01P	8:35P		
	9:59A	12:38P	4:29P	7:59P	"	Altoona, PA	"	8:26A	11:06A	7:35P		
	10:15A	4:45P	8:15P		"	Tyrone, PA	"	8:08A	10:48A	2:48P		
	10:42A	1:20P	5:12P	8:42P	"	Huntington, PA	"	7:42A	10:22A	6:50P		
	11:19A	1:59P	5:49P	9:19P	"	Lewistown, PA	"	7:06A	9:46A	6:11P		
	12:55P	3:35P	7:25P	10:55P	Ar	HARRISBURG, PA	Lv	6:00A	8:40A	5:05P		
	1:00P	3:56P	7:30P		Lv	HARRISBURG, PA	Ar		8:30A	4:53P		
			7:41P		"	Middletown, PA	"					
	1:18P	4:14P	7:50P		"	Elizabethtown, PA	"		8:06A	12:06P		
	1:38P	4:43P	8:11P		"	Mount Joy, PA	"					
	1:59P		8:31P		"	Lancaster, PA	"		7:48A	11:48A	4:15P	
			8:37P		"	Parkesburg, PA	"					
	2:08P		8:42P		"	Coatesville, PA	"					
	2:13P		8:47P		"	Downingtown, PA	"		7:16A	11:16A		
	2:22P		8:56P		"	Exton, PA	"					
	2:35P	5:34P	9:10P		"	Paoli, PA	"		7:05A	11:05A	3:24P	
			9:10P		"	Ardmore, PA	"					
	2:50P	5:55P	9:25P		Ar	PHILADELPHIA, PA	Lv		6:40A	2:55P		
	3:10P	6:05P	9:55P		Lv	PHILADELPHIA, PA	Ar		10:40A	2:55P		
	3:38P	7:10P	10:23P		"	Trenton, NJ	"		10:20A	2:25P		
	3:46P		10:30P		"	Princeton Jct., NJ	"		9:52A	1:46P		
					"	New Brunswick, NJ	"		9:44A			
	4:03P				"	Metropark, NJ	"					
	4:15P	7:48P	10:59P		"	Newark Airport, NJ	"					
	4:35P	8:10P	11:20P		"	Newark, NJ	"		9:17A	1:06P		
					Ar	NEW YORK, NY	Lv		9:00A	12:45P		

Attachment C

**Photographic Study of
Passenger Stations, Pittsburgh-Harrisburg, PA**

Photographs Taken

**May 3-7, 2004
October 4-8, 2004**

THE
WOODSIDE
CONSULTING
GROUP



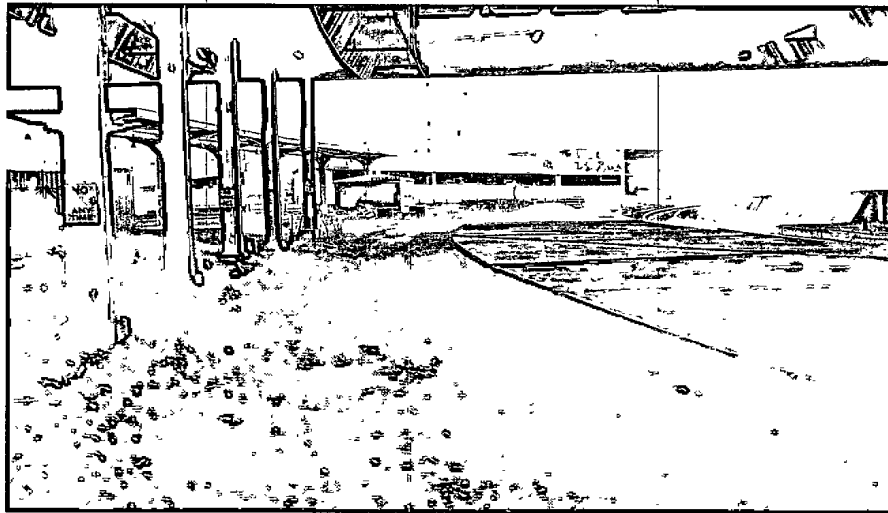
No 1. At the Pittsburgh Amtrak Station, facing west from the passenger platform adjacent to Track No. 1. This platform is used for all Amtrak trains. The freight train is westbound.



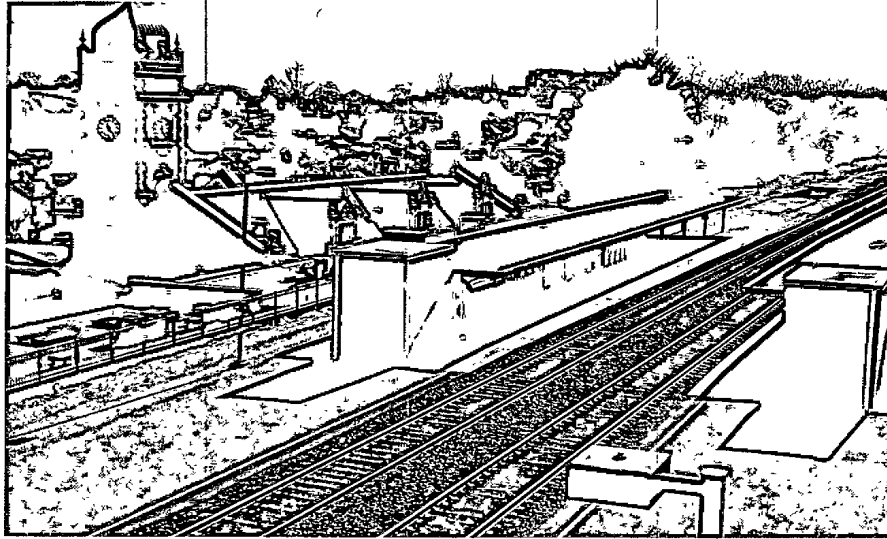
No. 2. At the Pittsburgh Amtrak Station, facing east from the passenger platform adjacent to Track No. 1. The two stub-ended tracks on the right of the photo appear infrequently used, except for business cars.



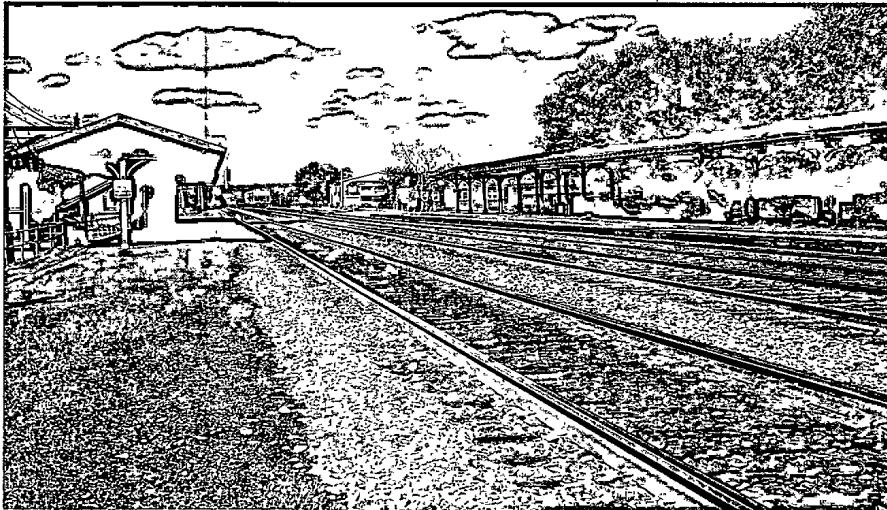
No. 3. At the Pittsburgh Amtrak Station, facing east adjacent to Track No. 2. This station platform can be reached only by crossing Track No. 1, and it is not used.



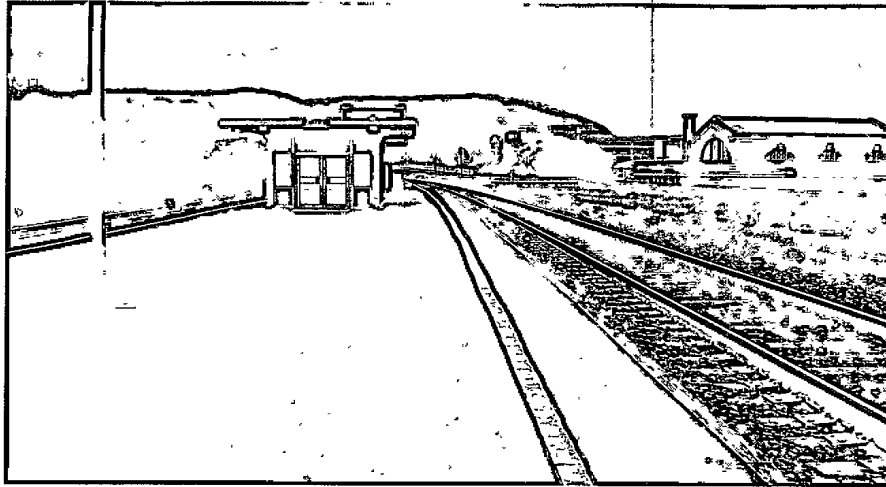
No. 4. At the Pittsburgh Amtrak Station, facing west toward West Pitt. Note the empty "slot" in the photo that was formerly occupied by a station track or main track.



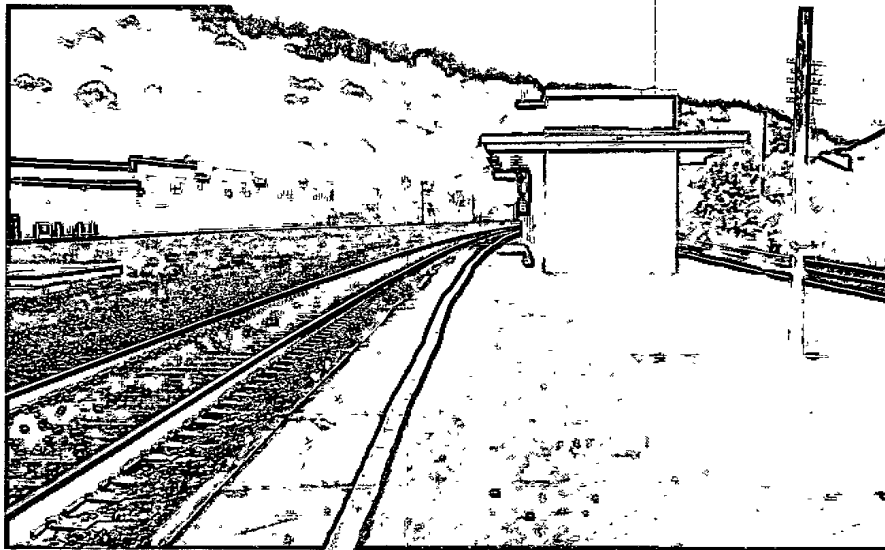
No. 5. At Greensburg, facing west. This station can load and unload passengers from both main tracks.



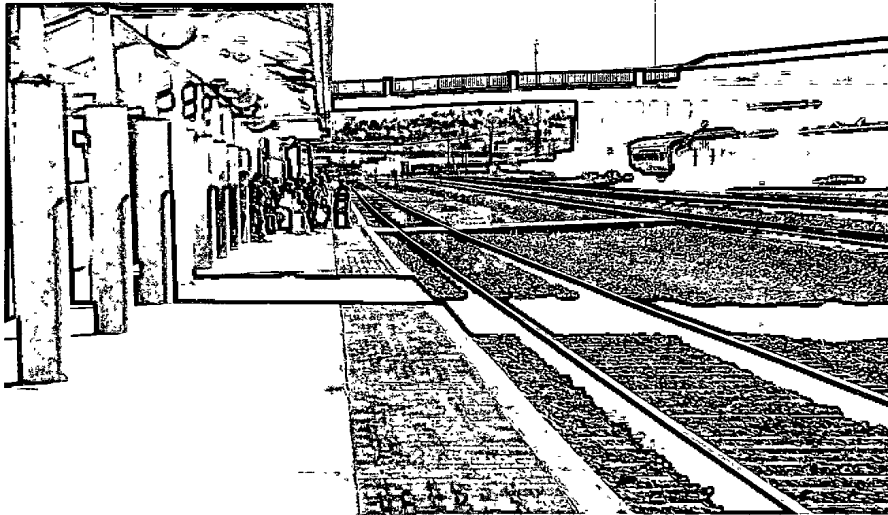
No. 6. At Latrobe, facing east. This station loads and unloads passengers only from the platform on the left of the photo adjacent to Track No. 2. The platform on the right is in poor condition, and the track adjacent to it is used to hold freight cars.



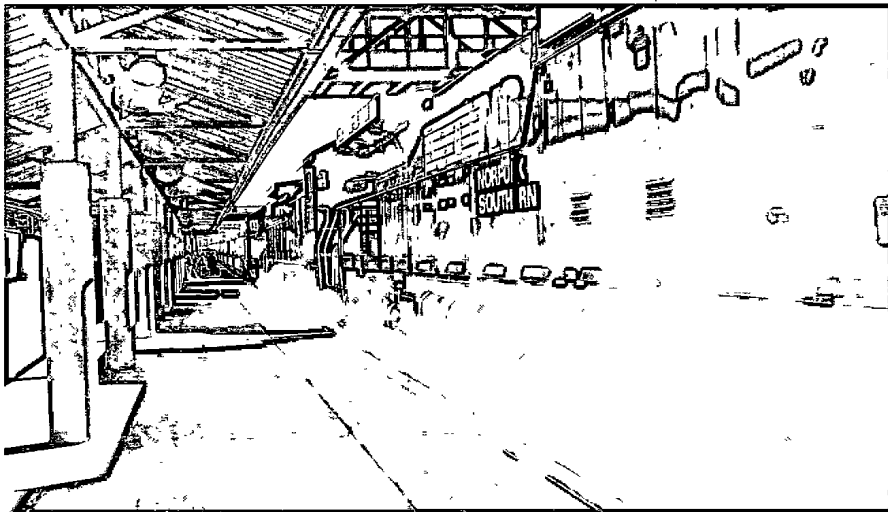
No. 7. At Johnstown, facing east. Track No. 3, the Sang Hollow Extension, is on the left and Track No. 2 is in the middle of the photo. Note that Track No. 1 does not reach the station platform.



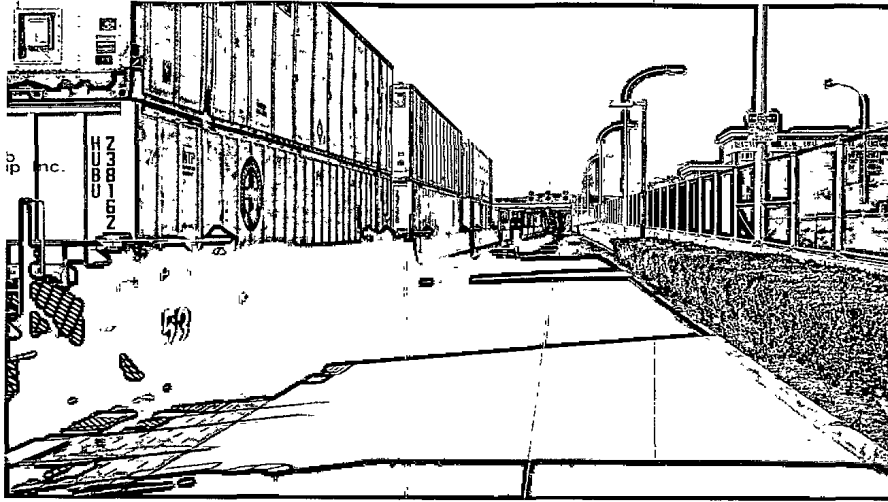
No. 8. At Johnstown, facing west. Track No. 1 is on the left, Track No. 2 is in the middle, and Track No. 3 is on the right of the photo. The nearest crossover between Tracks Nos. 1 and 2 is 15 miles west at CP-Conpit.



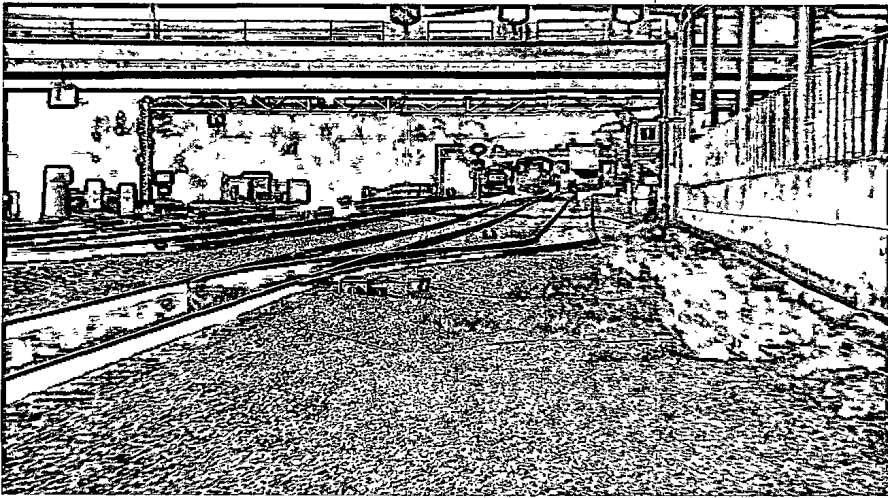
No. 9. At Altoona, facing east. Despite the pedestrian overpass shown in the photo, this station can load and unload passengers only from Track No. 2, which is adjacent to the station platform.



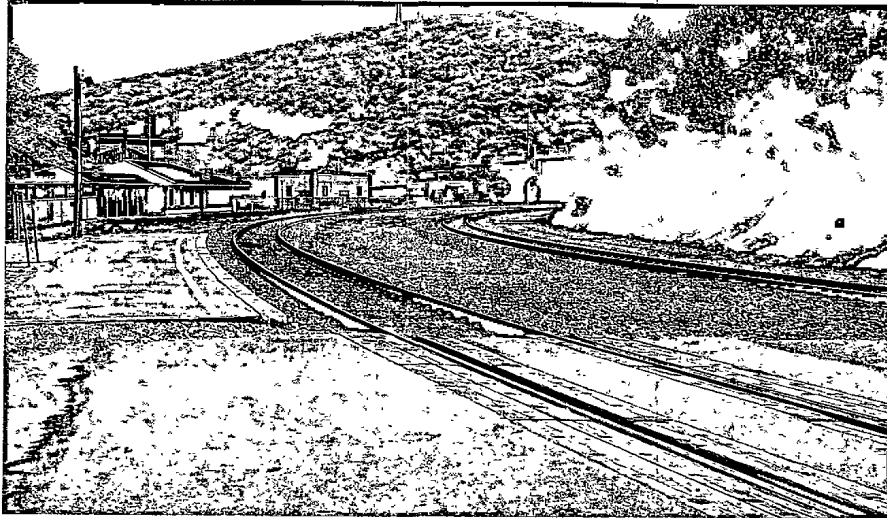
No. 10. At Altoona, facing east. A westbound doublestack train is passing the station platform, and will head into Track No. 3, where helpers will be added.



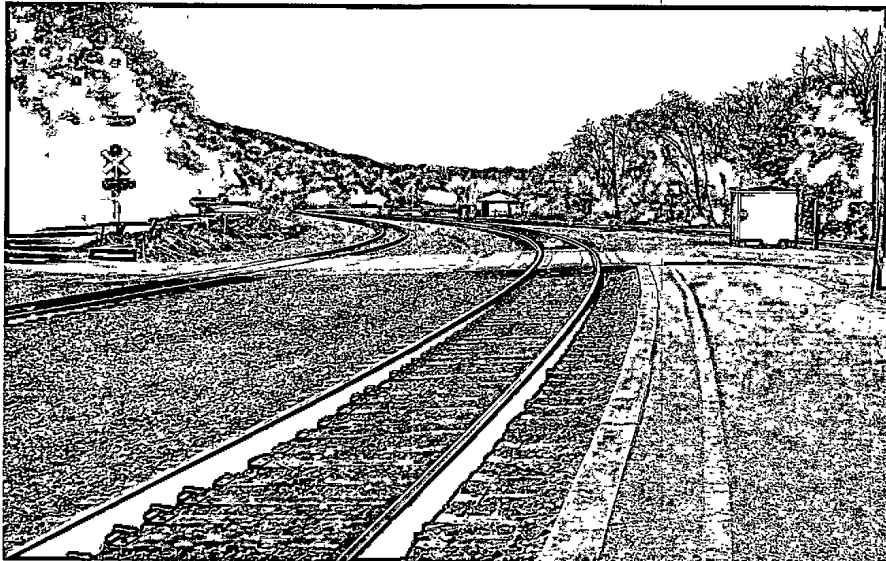
No. 11. At Altoona, facing west. The westbound doublestack container train is now moving through the switch from Track No. 2 to Track No. 3, beyond the west end of the station platform.



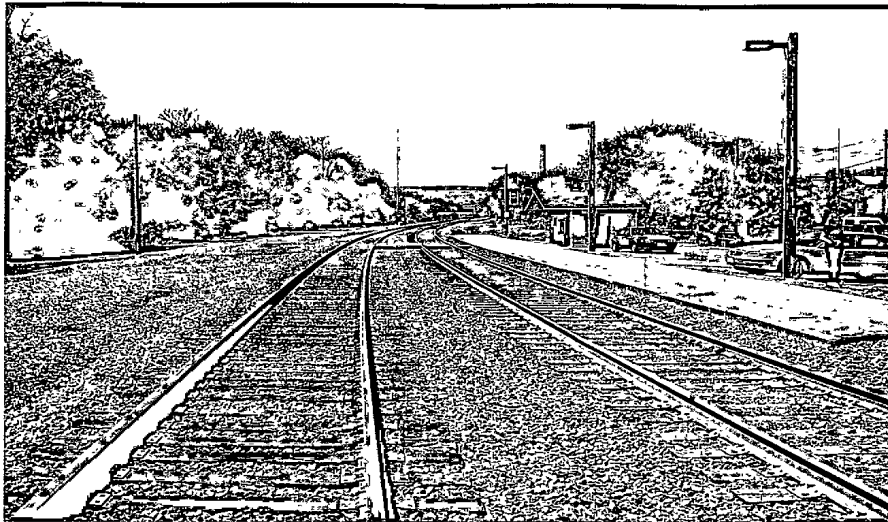
No. 12. At Altoona, facing west. The last car of the westbound doublestack container train is now on Track No. 3, adjacent to Alto Tower. The eastbound Amtrak train can now move into the Altoona station platform on Track No. 2, behind the camera. An eastbound loaded coal train is behind the signal mast on Track No. 1.



No. 13. At Tyrone, facing east. The short station platform to the left of the photo is adjacent to Track No. 2. The next crossover to the east is about 10 miles away at CP-Tunnel.



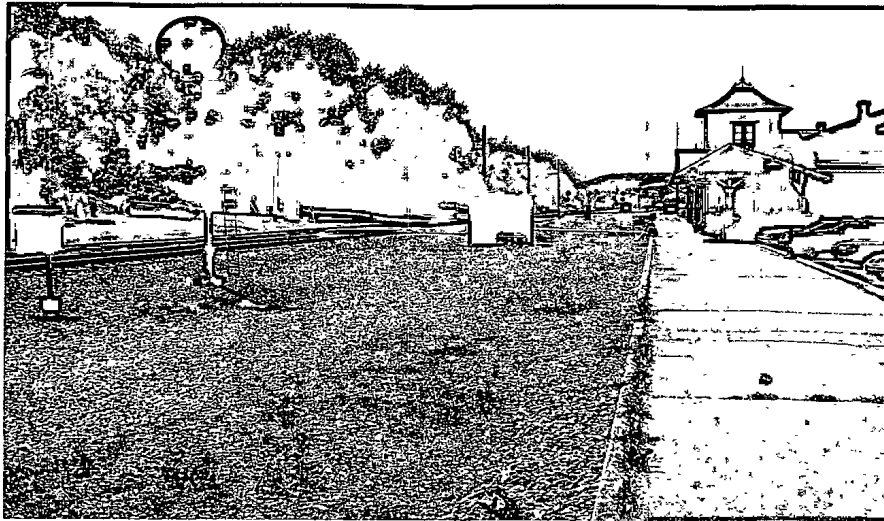
No. 14. At Tyrone, facing west from the station platform. The track to the right is the NBER Railroad, which connects at CP-Gray, about one mile to the west.



No. 15. At Huntingdon, facing west. The station platform is adjacent to Track No. 2, and is located between crossovers.



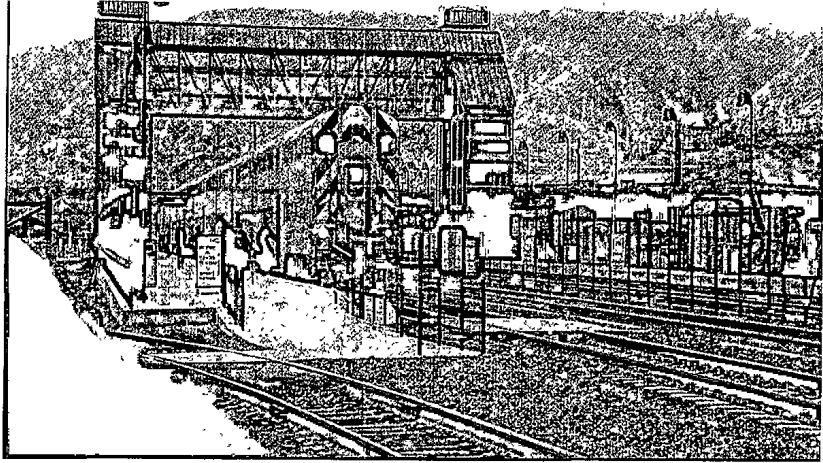
No. 16. At Huntingdon, facing east from the east end of the station platform. The westbound Trail Van train is operating at speed on Track No. 2.



No. 17. At Lewistown, facing west. Track No. 2 is closest to the station platform.



No. 18. At Lewistown, facing generally east. As the signs demonstrate, Amtrak trains are loaded and unloaded only from Track No. 2, which is adjacent to the station platform.



No. 19. A typical ADA-compliant passenger overpass at Bayshore, CA, located in the San Francisco-San Jose commuter service corridor.

Statistics for included run-time trains. Dwell times include time spent at initial and final terminals. Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times

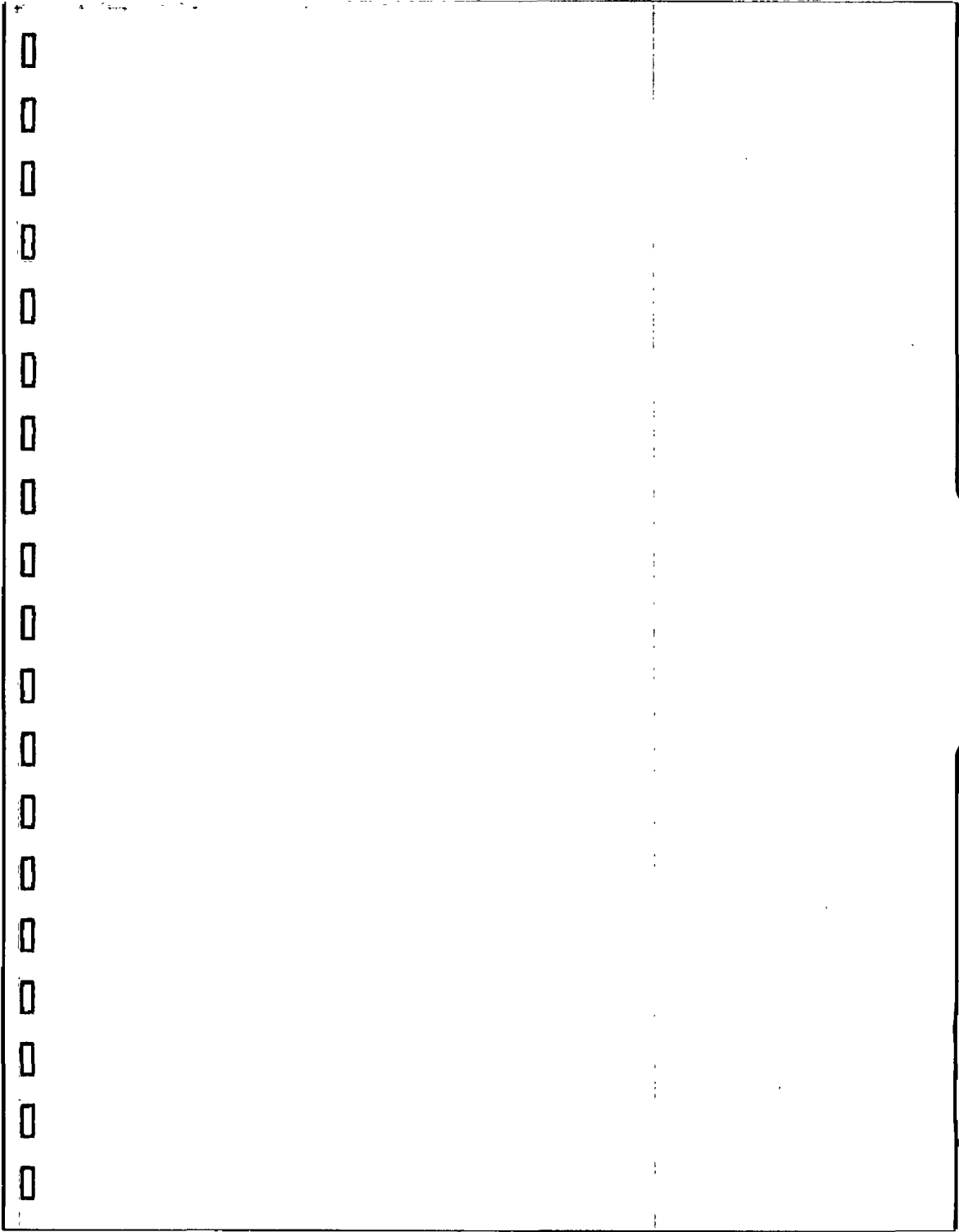
Train	Average w/o Dwell	Average with Dwell	Speed	Run Time w/o Dwell	Run Time with Dwell	% of Dwell	Calculated w/o Dwell	Calculated with Dwell	Sched. # of Dwell	Sched. # of Dwell	Delay w/o Dwell	Delay with Dwell	Entry Delay w/o Dwell	Entry Delay with Dwell	Train w/o Dwell	Train with Dwell	Delta w/o Dwell	Delta with Dwell	Delay per 100-Trains	Delay per 100-Trains	Cumulative w/o Dwell	Cumulative with Dwell
288 GMDH1303-14	9.13	6.65	18.54	18.54	18.54	0.00	3.294	3.294	0	0	0.00	0.00	0.00	0.00	0	0	2.232	2.232	0.000	0.000	0.000	0.000
289 GMDH1303-15	8.25	7.67	21.19	21.19	21.19	0.00	4.894	4.894	0	0	0.00	0.00	0.00	0.00	0	0	2.723	2.723	0.000	0.000	0.000	0.000
290 GMDH1303-16	27.82	24.72	10.40	10.40	10.40	0.00	4.604	4.604	2	2	13.25	13.25	0.00	0.00	0	0	2.694	2.694	0.000	0.000	0.000	0.000
291 GMDH1303-17	27.86	26.58	9.54	9.54	9.54	0.00	4.944	4.944	3	3	13.56	13.56	0.00	0.00	0	0	2.694	2.694	0.000	0.000	0.000	0.000
292 GMDH1303-18	22.25	22.00	12.61	12.61	12.61	0.00	3.077	3.077	3	3	15.08	15.08	0.00	0.00	0	0	2.704	2.704	0.000	0.000	0.000	0.000
293 GMDH1303-19	18.78	18.15	14.33	14.33	14.33	0.00	3.348	3.348	3	3	15.22	15.22	0.00	0.00	0	0	2.714	2.714	0.000	0.000	0.000	0.000
294 GMDH1303-20	21.10	20.28	12.50	12.50	12.50	0.00	3.688	3.688	4	4	17.12	17.12	0.00	0.00	0	0	2.624	2.624	0.000	0.000	0.000	0.000
295 GMDH1303-21	25.72	24.51	10.34	10.34	10.34	0.00	4.688	4.688	4	4	17.16	17.16	0.00	0.00	0	0	2.624	2.624	0.000	0.000	0.000	0.000
296 GMDH1303-22	25.20	23.97	13.27	13.27	13.27	0.00	3.533	3.533	3	3	15.88	15.88	0.00	0.00	0	0	2.624	2.624	0.000	0.000	0.000	0.000
297 GMDH1303-23	33.01	29.25	8.41	8.41	8.41	0.00	3.618	3.618	3	3	18.50	18.50	0.00	0.00	0	0	2.694	2.694	0.000	0.000	0.000	0.000
298 GMDH1303-24	28.47	27.05	10.20	10.20	10.20	0.00	5.013	5.013	3	3	17.85	17.85	0.00	0.00	0	0	2.704	2.704	0.000	0.000	0.000	0.000
299 GMDH1303-25	25.58	24.41	10.22	10.22	10.22	0.00	4.533	4.533	3	3	17.16	17.16	0.00	0.00	0	0	2.704	2.704	0.000	0.000	0.000	0.000
300 GMDH1303-26	20.67	19.35	13.51	13.51	13.51	0.00	3.253	3.253	4	4	17.74	17.74	0.00	0.00	0	0	2.704	2.704	0.000	0.000	0.000	0.000
301 GMDH1303-27	23.02	22.00	10.57	10.57	10.57	0.00	3.033	3.033	3	3	16.28	16.28	0.00	0.00	0	0	2.704	2.704	0.000	0.000	0.000	0.000
302 GMDH1303-28	4.25	4.25	17.10	17.10	17.10	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
303 GMDH1303-29	9.40	9.40	17.62	17.62	17.62	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
304 GMDH1303-30	8.17	8.17	17.03	17.03	17.03	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
305 GMDH1303-31	14.83	14.83	14.83	14.83	14.83	0.00	1.000	1.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
306 GMDH1303-32	13.25	13.25	22.26	22.26	22.26	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
307 GMDH1303-33	14.83	14.83	24.18	24.18	24.18	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
308 GMDH1303-34	7.84	7.84	25.10	25.10	25.10	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
309 GMDH1303-35	23.73	23.73	8.29	8.29	8.29	0.00	3.368	3.368	3	3	19.72	19.72	0.00	0.00	0	0	2.624	2.624	0.000	0.000	0.000	0.000
310 GMDH1303-36	35.00	32.74	8.09	8.09	8.09	0.00	4.428	4.428	3	3	18.00	18.00	0.00	0.00	0	0	2.624	2.624	0.000	0.000	0.000	0.000
311 GMDH1303-37	25.01	22.06	10.55	10.55	10.55	0.00	3.033	3.033	3	3	16.28	16.28	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
312 GMDH1303-38	30.33	29.21	8.44	8.44	8.44	0.00	3.568	3.568	3	3	18.00	18.00	0.00	0.00	0	0	2.624	2.624	0.000	0.000	0.000	0.000
313 GMDH1303-39	4.02	4.02	16.55	16.55	16.55	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
314 GMDH1303-40	3.10	3.10	16.53	16.53	16.53	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
315 GMDH1303-41	8.78	8.33	19.37	19.37	19.37	0.00	1.000	1.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
316 GMDH1303-42	6.88	6.88	15.38	15.38	15.38	0.00	0.000	0.000	0	0	0.00	0.00	0.00	0.00	0	0	2.724	2.724	0.000	0.000	0.000	0.000
317 GMDH1303-43	20.19	19.44	13.30	13.30	13.30	0.00	3.713	3.713	4	4	18.43	18.43	0.00	0.00	0	0	2.624	2.624	0.000	0.000	0.000	0.000

Statistics for Included run-time trains: Dwell times include time spent at initial and final terminals. Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times

Train	Speed		Run Time		Dwell		Schedule		Entry Delay		Total Delay		Total Miles		Miles per 100 Train Miles		Cumulative Delay		Train
	W/O Dwell	With Dwell	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	DO HH MM SS	
344 GWR120011-12	33.60	22.26	11:07:20	11:47:27	6:014	49:03	5:564	2:42:35	22:581	0	0	0	263:482	13:284	6:63	2494:9	7	Gene	
345 GWR120012-13	29.28	27.73	9:07:39	9:28:15	3:094	30:06	2:594	34:27	6:004	0	0	263:925	13:284	6:63	2494:9	7	Gene		
346 GWR120013-14	9.52	5.15	1:05:18	1:05:18	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	0:00	Gene
347 GWR120014-15	23.78	22.76	11:36:24	11:54:59	5:628	35:01	4:204	4:11:17	35:384	0	0	271:446	1:032	4:40	2114:6	2	Gene		
348 GWR120016-10	23.78	22.76	11:36:24	11:54:59	5:628	35:01	4:204	4:11:17	35:384	0	0	271:446	1:032	4:40	2114:6	2	Gene		
349 GWR120011-12	23.78	22.76	11:36:24	11:54:59	5:628	35:01	4:204	4:11:17	35:384	0	0	271:446	1:032	4:40	2114:6	2	Gene		
350 GWR120011-13	23.78	22.76	11:36:24	11:54:59	5:628	35:01	4:204	4:11:17	35:384	0	0	271:446	1:032	4:40	2114:6	2	Gene		
351 GWR120011-14	23.78	22.76	11:36:24	11:54:59	5:628	35:01	4:204	4:11:17	35:384	0	0	271:446	1:032	4:40	2114:6	2	Gene		
352 GWR120013-08	9.52	5.15	1:05:18	1:05:18	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	0:00	Gene
353 GWR120014-08	27.77	22.95	11:49:31	12:00:04	1:444	2:05:01	1:249	1:12:49	10:114	0	0	275:382	0:050	0:00	3:001	1	Gene		
354 GWR120015-08	26.49	25.25	10:25:27	10:40:47	2:454	1:50:05	4:591	1:27:10	13:604	0	0	268:668	3:022	3:02	1186:7	7	Gene		
355 GWR120016-08	26.49	25.25	10:25:27	10:40:47	2:454	1:50:05	4:591	1:27:10	13:604	0	0	268:668	3:022	3:02	1186:7	7	Gene		
356 GWR120017-08	26.49	25.25	10:25:27	10:40:47	2:454	1:50:05	4:591	1:27:10	13:604	0	0	268:668	3:022	3:02	1186:7	7	Gene		
357 GWR120018-08	26.49	25.25	10:25:27	10:40:47	2:454	1:50:05	4:591	1:27:10	13:604	0	0	268:668	3:022	3:02	1186:7	7	Gene		
358 GWR120019-10	26.49	25.25	10:25:27	10:40:47	2:454	1:50:05	4:591	1:27:10	13:604	0	0	268:668	3:022	3:02	1186:7	7	Gene		
359 GWR120020-10	26.49	25.25	10:25:27	10:40:47	2:454	1:50:05	4:591	1:27:10	13:604	0	0	268:668	3:022	3:02	1186:7	7	Gene		
360 GWR120011-12	29.41	25.25	8:45:12	10:28:11	1:784	1:19:03	1:144	1:41:40	0:004	0	0	264:346	0:050	0:00	34:797	15:73	2282:3	Gene	
361 GWR120011-13	29.41	25.25	8:45:12	10:28:11	1:784	1:19:03	1:144	1:41:40	0:004	0	0	264:346	0:050	0:00	34:797	15:73	2282:3	Gene	
362 GWR120013-10	29.41	25.25	8:45:12	10:28:11	1:784	1:19:03	1:144	1:41:40	0:004	0	0	264:346	0:050	0:00	34:797	15:73	2282:3	Gene	
363 GWR120014-10	11.69	5.66	1:05:04	1:05:04	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	Gene	
364 GWR120015-10	11.69	5.66	1:05:04	1:05:04	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	Gene	
365 GWR120016-10	15.77	16.77	1:30:44	1:30:44	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	Gene	
366 GWR120017-10	15.77	16.77	1:30:44	1:30:44	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	Gene	
367 GWR120018-10	15.77	16.77	1:30:44	1:30:44	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	Gene	
368 GWR120019-10	15.77	16.77	1:30:44	1:30:44	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	Gene	
369 GWR120020-10	15.77	16.77	1:30:44	1:30:44	0:000	0:00	0:000	0:00	0:00	0	0	0:000	0:00	0:00	0:00	0:00	0:00	Gene	
370 GWR120011-10	8.15	8.15	32:24	1:09:41	1:15:074	0	0:004	0	0:004	0	0	37:17	5:554	0	392:866	115:07	59:7	Gene	
371 GWR120012-10	8.15	8.15	32:24	1:09:41	1:15:074	0	0:004	0	0:004	0	0	37:17	5:554	0	392:866	115:07	59:7	Gene	
372 GWR120013-11	12.66	12.66	35:02	44:52	2:074	0	0:004	0	0:004	0	0	9:50	21:924	2:31	103:991	28:07	51:9	Gene	
373 GWR120014-11	12.66	12.66	35:02	44:52	2:074	0	0:004	0	0:004	0	0	9:50	21:924	2:31	103:991	28:07	51:9	Gene	
374 GWR120015-11	4.54	3.44	1:42:03	2:45:10	6:854	49:00	2:824	0	0:004	0	0	1:03:07	36:234	5:42	9:466	466:372	101:72	39:7	Gene
375 GWR120016-11	11.92	11.92	35:39	1:15:06	1:15:074	1:00	1:024	0	0:004	0	0	17:25	36:584	9:00	149:592	17:84	31:5	Gene	
376 GWR120017-11	11.92	11.92	35:39	1:15:06	1:15:074	1:00	1:024	0	0:004	0	0	17:25	36:584	9:00	149:592	17:84	31:5	Gene	
377 GWR120018-11	9.33	9.16	35:53	55:30	3:154	1:00	1:824	0	0:004	0	0	40:01	5:004	0	41:000	13:00	4:1	Gene	
378 GWR120019-11	9.33	9.16	35:53	55:30	3:154	1:00	1:824	0	0:004	0	0	40:01	5:004	0	41:000	13:00	4:1	Gene	
379 GWR120020-11	9.33	9.16	35:53	55:30	3:154	1:00	1:824	0	0:004	0	0	40:01	5:004	0	41:000	13:00	4:1	Gene	
380 GWR120011-12	8.96	7.28	5:44:22	4:52:07	-7:114	2:46:01	7:014	3:32:40	0:004	0	0	15:37	28:144	15:42	8:476	184:246	40:15	64:1	Gene
381 GWR120012-12	8.96	7.28	5:44:22	4:52:07	-7:114	2:46:01	7:014	3:32:40	0:004	0	0	15:37	28:144	15:42	8:476	184:246	40:15	64:1	Gene
382 GWR120013-09	2.80	2.80	17:47	38:22	2:814	0	0:004	0	0:004	0	0	40:35	69:534	40:35	1489:297	228:21	117:6	Gene	
383 GWR120014-09	13.43	13.69	38:52	38:52	0:004	1:00	2:574	0	0:004	0	0	8:476	0:000	0:00	9:000	0:00	97:1	Gene	
384 GWR120015-09	13.43	13.69	38:52	38:52	0:004	1:00	2:574	0	0:004	0	0	8:476	0:000	0:00	9:000	0:00	97:1	Gene	
385 GWR120016-09	24.77	21.86	12:14:46	12:13:27	0:564	35:07	4:074	5:16:04	21:534	0	0	268:584	0:000	0:00	6:926	0:38	1059:7	Gene	
386 GWR120017-09	24.77	21.86	12:14:46	12:13:27	0:564	35:07	4:074	5:16:04	21:534	0	0	268:584	0:000	0:00	6:926	0:38	1059:7	Gene	
387 GWR120018-09	34.69	33.69	5:31:16	5:32:28	0:524	30:02	13:24	2:2:16	1:124	0	0	130:521	0:919	0:60	0:919	0:60	113:6	Gene	
388 GWR120019-09	9.03	5.60	1:07:13	1:07:13	0:000	30:05	4:034	0	0:004	0	0	275:501	0:000	0:00	2:3	0:00	23:1	Gene	
389 GWR120020-09	9.03	5.60	1:07:13	1:07:13	0:000	30:05	4:034	0	0:004	0	0	275:501	0:000	0:00	2:3	0:00	23:1	Gene	
390 GWR120011-10	38.36	35.80	7:23:21	7:30:25	2:134	36:04	6:034	0	0:004	0	0	263:668	0:000	0:00	3:488	2:28	337:1	Gene	
391 GWR120012-10	38.36	35.80	7:23:21	7:30:25	2:134	36:04	6:034	0	0:004	0	0	263:668	0:000	0:00	3:488	2:28	337:1	Gene	
392 GWR120013-10	8.21	7.82	20:55	20:55	0:004	1:00	4:184	0	0:004	0	0	2:725	0:000	0:00	0:000	0:00	3:1	Gene	



Attachment E



Attachment E-1

Case: Keystone Keystone West Rail Capacity Study Elapsed execution time 40:24 (HH:MM:SS)

Simulation start time: 5a 00 00 Duration 9 00:00 (DD:HH:MM) Warm-up exclusion: 1 00 00 (DD:HH:MM) Cool-down period: 1 00 00 (DD:HH:MM)

Met conflicts = 3,543 (624M + 2,919P) Gross conflicts = 5,260 (979M + 4,281P) Meet-pass difficulty = 33 (on a scale of 0 to 100) Dispatched trains = 898 (0 failed)

Train type	Run-time		Average		Meet-Pass		Total*		Wait on		Switch		Stop*		Total		Entry*		Total		Train		
	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	
Amtrak	42	37 909	0 29	1 04 35	17 04	0	0 27	8 11 03	0	8 11 03	0	0 27	8 11 03	0	8 11 03	0	8 11 03	0	8 11 03	0	8 11 03	7698 0	7698 0
Premium Intermodal	59	34,704	1 11	1 33	2 07 49	0	4 57	21 04 02	0 45	21 04 48	0	4 57	21 04 02	0 45	21 04 48	0	21 04 48	0	21 04 48	0	21 04 48	17631 6	17631 6
Intermodal	123	31 821	1 61	1 05 43	1 17 33	0	9 02	26 15 49	1 21	26 17 10	0	1 38	5 20 52	0 47	5 21 39	0	5 21 39	0	5 21 39	0	5 21 39	21639 4	21639 4
Triple Crown	18	34 884	1 26	0 01	19 44	0	1 38	5 20 52	0 47	5 21 39	0	1 38	5 20 52	0 47	5 21 39	0	5 21 39	0	5 21 39	0	5 21 39	4914 2	4914 2
Automotive parts	24	31 914	1 95	5 04	12 29	0	2 31	6 04 32	0 36	6 05 09	0	2 31	6 04 32	0 36	6 05 09	0	6 05 09	0	6 05 09	0	6 05 09	4740 7	4740 7
General Merchandise	199	27 675	3 87	2 13 00	2 14	0	0 40	1 17 31	0	1 17 31	0	0 40	1 17 31	0	1 17 31	0	1 17 31	0	1 17 31	0	1 17 31	1438 2	1438 2
Foreign Merchandise	10	5 762	6 66	6 50	12 19	0	1 09 55	38 08 50	5 34	38 14 24	0	1 09 55	38 08 50	5 34	38 14 24	0	38 14 24	0	38 14 24	0	38 14 24	25484 7	25484 7
Coal	135	24 963	3 66	1 13 44	1 19 26	0	11 31	12 38 54	4 15	12 43 28	0	11 31	12 38 54	4 15	12 43 28	0	12 43 28	0	12 43 28	0	12 43 28	151 2	151 2
Unit	10	29 488	3 44	2 30	5 44	0	2 06	2 23 28	0 06	2 23 36	0	2 06	2 23 28	0 06	2 23 36	0	2 23 36	0	2 23 36	0	2 23 36	2107 9	2107 9
Local	85	12 440	10 14	1 12 59	3 21 29	5 17	11 27	10 13 09	1 46	10 14 56	0	11 27	10 13 09	1 46	10 14 56	0	10 14 56	0	10 14 56	0	10 14 56	553 9	553 9
Work Train	7	26 157	4 96	5 32	1 13	0 04	0 40	0 40	0 40	0 40	0 04	0 40	0 40	0 40	0 40	0 04	0 40	0 40	0 40	0 04	0 40	21 10	21 10
All train types	728	29 478	2 86	9 03 10	15 04 52	5 22	3 06 08	140 17 45	15 55	141 09 41	99568 7	5 22	3 06 08	140 17 45	15 55	141 09 41	99568 7	5 22	3 06 08	140 17 45	15 55	141 09 41	99568 7

Train Group	Run-time		Average		Meet-Pass		Total*		Wait on		Switch		Stop*		Total		Entry*		Total		Train		
	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	Count	with Dwell	
Passenger	42	37 909	0 29	1 04 35	17 04	0	0 27	8 11 03	0	8 11 03	0	0 27	8 11 03	0	8 11 03	0	8 11 03	0	8 11 03	0	8 11 03	7698 0	7698 0
Freight	246	4 677	4 65	1 15 24	5 01 51	5 22	2 10 50	70 15 53	12 24	71 04 17	41506 6	5 22	2 10 50	70 15 53	12 24	71 04 17	41506 6	5 22	2 10 50	70 15 53	12 24	71 04 17	41506 6
All groups	728	29 478	2 86	9 03 10	15 04 52	5 22	3 06 08	140 17 45	15 55	141 09 41	99568 7	5 22	3 06 08	140 17 45	15 55	141 09 41	99568 7	5 22	3 06 08	140 17 45	15 55	141 09 41	99568 7

* Dwell times include time spent at initial and final terminals

Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times.

True delay = Total elapsed run time - Ideal (speed or run-time) elapsed run time

True delay includes the acceleration and deceleration time, but excludes conflict resolutions

Stop delay does not have acceleration and deceleration time, but only the time spent at speed 0

Meet-Pass Delay % = 100 * True delay / (Total elapsed - True delay - Total dwell - Wait on schedule)

OTP = On-time performance. Trains arriving later than their requested arrival time less a type-specific threshold time are considered late

All others are on time

Warm-up train count = 87 Cool-down train count = 79 Total number of candidate run-time trains excluded from statistics = 166

Case: Keystone Keystone West Rail Capacity Study
 Simulation start time Sa 00 00 Duration 9 00.00 (DD HH:MM) Warm-up exclusion 1:00 00 (DD HH:MM) Cool-down period 1:00 00 (DD HH:MM)
 Net conflicts = 3,543 (624M + 2,919P) Gross conflicts = 5,260 (979M + 4,281P) Meet-pass difficulty = 33 (on a scale of 0 to 100) Dispatched trains = 898 (0 failed)

Train Type	Run-time Train Count	Average Speed	Meet-Pass Delay	Total Delay	Wait on Schedule	Switch Delay	Stop Delay	Total Run-time		Entry Delay		Total Elapsed		Train Miles	OTP*
								with Dwell	without Dwell	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM		
Premium Intermodal	38	20.155	14.83	0.30	1.31	0	3.35	1.05:25	0:26	1:05:52	593.1	1:05:52	593.1		
Intermodal	81	18.576	5.18	10.15	6.14	0	2.34	2:20:03	0:47	2:20:51	1264.3	2:20:51	1264.3		
Multi-level	18	16.113	9.14	4.30	0.30	0	1.04	17:26	0:28	17:55	281.0	17:55	281.0		
Automotive parts	6	14.210	4.52	3.00	0	0	0.09	6:34	0	6:34	93.7	6:34	93.7		
General Merchandise	1	12.248	18.39	6:30	0:09	0	1.32	16:28	0:04	16:33	202.9	16:33	202.9		
Coal	99	18.248	16.39	1:06:30	0:35	0	6.35	3:21:48	3:07	4:00:56	1377.8	4:00:56	1377.8		
Unit	5	18.196	16.83	0:30	0:35	0	3.57	2:42:30	0:52	2:42:30	82.0	2:42:30	82.0		
Local	43	10.966	11.19	14.04	17.05	2.30	3.57	2:42:30	0:52	2:42:30	772.1	2:42:30	772.1		
All train types	303	15.216	10.31	2:21:53	1:07:05	3:08	19.42	12:18:42	5:06	12:23:49	4666.9	12:23:49	4666.9		

Train Group	Run-time Train Count	Average Speed	Meet-Pass Delay	Total Delay	Wait on Schedule	Switch Delay	Stop Delay	Total Run-time		Entry Delay		Total Elapsed		Train Miles	OTP*
								with Dwell	without Dwell	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM		
Trail Van	143	18.370	8.30	18.15	8.16	0	7.24	5:01:30	1:43	5:03:13	2232.1	5:03:13	2232.1	19.82	
Freight	160	13.147	12.07	2:03:37	22:48	3:08	12.17	7:17:12	3:23	7:20:35	2434.8	7:20:35	2434.8	30.30	
All Groups	303	15.216	10.31	2:21:53	1:07:05	3:08	19.42	12:18:42	5:06	12:23:49	4666.9	12:23:49	4666.9	25.34	

* Dwell times include time spent at initial and final terminals
 Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times
 True delay = Total elapsed run time - Ideal (seed or run-time) elapsed run time
 True delay includes the acceleration and deceleration associated with conflict resolutions
 Stop delay does not have acceleration and deceleration time, it is only the time spent at speed 0
 Meet-Pass Delay % = 100 * True delay / (Total elapsed - True delay - Total dwell - Wait on schedule)
 OTP = On-time performance (Trains arriving later than their requested arrival time less a type-specific threshold time are considered late)
 All others are on time
 Warm-up train count = 87 Cool-down train count = 79 Total number of candidate run-time trains excluded from statistics = 166

Mon Line Dwell times include time spent at initial and final terminals. Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times

Train	w/o Dwell	Average		Total		Wait on		Switch		Stop		Run Time		Entry		Train	
		Delay	Time	Delay	Time	CP	RM	SS	DD	RM	SS	DD	RM	SS	DD	RM	SS
100 GM24620412-12	9 46	4 46	1 48 20	0 01	0 028	53 33	0 004	0	0	0	0	15 42	14 274	5 40	0	15 603	20 546
101 GM24620412-12	12 76	7 27	1 48 03	30 00	27 744	20 0	0 004	13 55M	0	0	0	0	0	0	0	15 603	1 004
102 GM24620408-08	12 76	7 27	1 48 03	30 00	27 744	20 0	0 004	13 55M	0	0	0	0	0	0	0	15 603	1 004
103 GM24620410-10	12 76	7 27	1 48 03	30 00	27 744	20 0	0 004	13 55M	0	0	0	0	0	0	0	15 603	1 004
104 GM24620411-11	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
105 GM24620413-14	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
106 GM24620415-16	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
107 GM24620417-18	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
108 GM24620419-20	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
109 GM24620421-22	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
110 GM24620423-24	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
111 GM24620425-26	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
112 GM24620427-28	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
113 GM24620429-30	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
114 GM24620431-32	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
115 GM24620433-34	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
116 GM24620435-36	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
117 GM24620437-38	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
118 GM24620439-40	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
119 GM24620441-42	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
120 GM24620443-44	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
121 GM24620445-46	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
122 GM24620447-48	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
123 GM24620449-50	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
124 GM24620451-52	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
125 GM24620453-54	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
126 GM24620455-56	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
127 GM24620457-58	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
128 GM24620459-60	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
129 GM24620461-62	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
130 GM24620463-64	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
131 GM24620465-66	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
132 GM24620467-68	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
133 GM24620469-70	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
134 GM24620471-72	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
135 GM24620473-74	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
136 GM24620475-76	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
137 GM24620477-78	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
138 GM24620479-80	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
139 GM24620481-82	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
140 GM24620483-84	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
141 GM24620485-86	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
142 GM24620487-88	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
143 GM24620489-90	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
144 GM24620491-92	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
145 GM24620493-94	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
146 GM24620495-96	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
147 GM24620497-98	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
148 GM24620499-100	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
149 GM24620501-101	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
150 GM24620503-102	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
151 GM24620505-103	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
152 GM24620507-104	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
153 GM24620509-105	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
154 GM24620511-106	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
155 GM24620513-107	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
156 GM24620515-108	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
157 GM24620517-109	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
158 GM24620519-110	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
159 GM24620521-111	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
160 GM24620523-112	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
161 GM24620525-113	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
162 GM24620527-114	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
163 GM24620529-115	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
164 GM24620531-116	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
165 GM24620533-117	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
166 GM24620535-118	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
167 GM24620537-119	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
168 GM24620539-120	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
169 GM24620541-121	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
170 GM24620543-122	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0	0	0	0	0	15 603	0 000
171 GM24620545-123	15 24	10 34	2 07 35	0 01	0 014	0	0 004	24 17M	0	0	0						

Blank form area with a vertical dashed line down the center and a series of 18 small rectangular boxes along the left edge.

Attachment E-3

Case keystone Keystone West Rail Capacity Study Elapsed execution time 40 24 (HH:MM SS)

Simulation start time Sa 00-00 Duration 9 00 00 (DD:HH:MM) Warm-up exclusion 1 00 00 (DD:HH:MM) Cool-down period 1 00 00 (DD:HH:MM)

Net conflicts = 3.543 (62M + 2.919P) Gross conflicts = 5.260 (979M + 4.281P) Meet-pass difficulty = 33 (on a scale of 0 to 100) Dispatched trains = 899 (0 failed)

Train type	Run-time Count	Average Speed	Meet-Pass Delay*	Total* Delay*	Wait on Schedule	Switch Delay	Stop* Delay	Total* Delay	Run-time Delay	Entry* Delay	Total* Delay	Elapsed Delay	Train Miles	OTF*
Premium Intermodal	38	12 901	2 01	0 30	0 02	0	0 09	8 23	0 26	0 47	1 04:00	1 04:47	230.9	---
Intermodal	81	8 244	3 16	10 15	0 12	0	0 33	1 04:00	0 47	1 04:47	1 04:47	230.9	---	
Multi-level	18	5 267	3 18	4 30	0 19	0	0 07	8 35	0 28	9:04	9:04	51.3	---	
Automotive Parts	6	3 861	10 27	3 00	0	0	0 04	4 24	0	4 24	4 24	17.1	---	
Coal Merchandise	22	5 374	2 81	5 31	0	0	0 06	10 42	0 08	9:25	10:48	37.1	---	
Coal	4	16 196	0 88	7 31	0	0	0 06	10 42	0 08	10:48	12 17	11.4	---	
Unit	3	2 712	11 42	2 30	0	0	0 04	3 09	0	3 09	3 09	8.6	---	
Local	185	7 099	2 99	1 10 46	0 34	0	1 14	3 02:16	3:59	3 06 15	527 3	---	---	

Train Group	Run-time Count	Average Speed	Meet-Pass Delay*	Total* Delay*	Wait on Schedule	Switch Delay	Stop* Delay	Total* Delay	Run-time Delay	Entry* Delay	Total* Delay	Elapsed Delay	Train Miles	OTF*
Traill Van	143	8 250	3 16	18 15	0 34	0	0 59	2 01:23	1 43	2 03:06	407 6	14 54	---	
Freight	42	4 813	2 47	16 31	0	0	1 00 52	2 16	1:03 08	119 7	12 85	---		
All Groups	185	7 099	2 99	1 10 46	0 34	0	1 14	3 02 16	3 59	3 06 15	527 3	14 16	---	

* Dwell times include time spent at initial and final terminals

Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times

True delay = Total elapsed run time - Ideal (speed or run-time) elapsed run time

True delay includes the acceleration and deceleration associated with conflict resolutions

Stop delay does not have acceleration and deceleration time; it is only the time spent at speed 0.

Meet-Pass Delay % = 100 * True delay / (Total elapsed - True delay - Total dwell - Wait on schedule)

OTF = On-time performance Trains arriving later than their requested arrival time less a type-specific threshold time are considered late.

All others are on time

Warm-up train count = 87 Cool-down train count = 79 Total number of candidate run-time trains excluded from statistics = 166

Case Name: ... Date: ...

Table with multiple columns: Account, Amount, Date, Description, etc. Includes various entries and a summary at the bottom.

Port Perry Branch dwell times include time spent at original and final terminals. Inter-dwell times held out of network as opposed to origin delay and dwell. Included in delay times traffic statistics

Train	Speed m/s	Average Speed m/s	Run Time min	Sum Time min	Dwell min	Total min	Sched % of Schedule	Wait on Schedule min	Wait on Switch min	Delay min	Step min	Hold min	Empty min	Total min	Delay per 100 m	Rate per 100 m	Train Type
50 HMR00C12-12	16.26	16.26	15.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
51 HMR00C12-13	14.45	14.45	11.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
52 HMR00C12-14	11.39	11.39	15.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
53 HMR00C12-15	11.38	11.38	15.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
54 HMR00C12-16	9.14	9.14	20.57	0.00	0.00	0.00	0.00	0.00	0.00	4.30	21.44	3.39	0.00	2.850	157.895	27.34	Intermodal
55 HMR00C12-17	11.25	11.25	15.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
56 HMR00C12-18	11.25	11.25	15.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
57 HMR00C12-19	11.25	11.25	15.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
58 HMR00C12-20	11.21	11.20	15.16	0.01	0.11	0.42	4.89	0.00	0.00	7.30	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
59 HMR00C12-21	11.21	11.20	15.16	0.01	0.11	0.42	4.89	0.00	0.00	7.30	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
60 HMR00C12-22	13.24	13.24	12.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
61 HMR00C12-23	13.19	13.19	12.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
62 HMR00C12-24	13.24	13.24	12.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
63 HMR00C12-25	13.19	13.19	12.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
64 HMR00C12-26	7.87	7.86	23.29	0.01	0.17	3.54	17.88	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
65 HMR00C12-27	12.67	12.67	13.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
66 HMR00C12-28	13.05	13.05	13.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
67 HMR00C12-29	13.12	13.12	13.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
68 HMR00C12-30	12.20	12.20	13.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
69 HMR00C12-31	11.71	11.71	14.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
70 HMR00C12-32	9.78	9.79	17.29	0.00	0.00	0.00	0.00	0.00	0.00	3.35	20.94	0.00	0.00	2.850	32.316	21.90	Intermodal
71 HMR00C12-33	11.18	11.16	15.19	0.01	0.11	0.42	4.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
72 HMR00C12-34	11.18	11.16	15.19	0.01	0.11	0.42	4.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
73 HMR00C12-35	11.50	11.50	14.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
74 HMR00C12-36	11.50	11.50	14.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
75 HMR00C12-37	12.87	12.87	13.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
76 HMR00C12-38	13.85	13.85	15.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
77 HMR00C12-39	16.23	16.23	10.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
78 HMR00C12-40	16.23	16.23	10.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
79 HMR00C12-41	15.89	15.89	10.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
80 HMR00C12-42	16.23	16.23	10.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
81 HMR00C12-43	16.23	16.23	10.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
82 HMR00C12-44	15.31	15.31	11.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
83 HMR00C12-45	14.13	14.13	10.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
84 HMR00C12-46	16.04	16.06	10.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
85 HMR00C12-47	15.66	15.66	10.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Intermodal
86 HMR00C12-48	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
87 HMR00C12-49	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
88 HMR00C12-50	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
89 HMR00C12-51	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
90 HMR00C12-52	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
91 HMR00C12-53	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
92 HMR00C12-54	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
93 HMR00C12-55	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
94 HMR00C12-56	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
95 HMR00C12-57	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
96 HMR00C12-58	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
97 HMR00C12-59	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal
98 HMR00C12-60	17.84	17.84	4.32	30.00	75.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.850	0.000	0.00	Intermodal

Port Ferry Branch dwell times include time from initial and final terminals. Empty ferry times held out of network as opposed to origin delay and dwell included in delay times train statistics

Train	Speed %/hr	Speed ft/min	Average ft/min	Run Time min	Dwell min	Total min	% of Schedule	Sched min	% of Mile	Mile min	% of Switch	Delay min	% of Delay	% of Mile	% of Mile	Train Type
100 HMO23WCI18-16	17.84	15.45	17.84	15.45	0	15.45	0	0	0.00%	0	0	0	0	0	0	Intermodal
101 HMO23WCI18-11	17.84	4.23	17.84	39.25	10.00	49.25	0	0	0.00%	0	0	0	0	0	0	Intermodal
102 HMO23WCI18-12	15.57	15.57	15.57	10.89	0	10.89	0	0	0.00%	0	0	0	0	0	0	Intermodal
103 HMO23WCI18-13	15.57	15.57	15.57	10.89	0	10.89	0	0	0.00%	0	0	0	0	0	0	Intermodal
104 HMO23WCI18-14	16.71	16.71	16.71	10.44	0	10.44	0	0	0.00%	0	0	0	0	0	0	Intermodal
105 HMO23WCI18-15	17.78	17.78	17.78	9.56	0	9.56	0	0	0.00%	0	0	0	0	0	0	Intermodal
106 HMO23WCI18-11	17.78	4.23	17.78	39.27	10.00	49.27	0	0	0.00%	0	0	0	0	0	0	Intermodal
107 HMO23WCI18-12	15.25	15.25	15.25	10.99	0	10.99	0	0	0.00%	0	0	0	0	0	0	Intermodal
108 HMO23WCI18-13	15.25	15.25	15.25	10.99	0	10.99	0	0	0.00%	0	0	0	0	0	0	Intermodal
109 HMO23WCI18-14	14.64	14.64	14.64	11.41	0	11.41	0	0	0.00%	0	0	0	0	0	0	Intermodal
110 HMO23WCI18-15	15.55	15.55	15.55	10.30	0	10.30	0	0	0.00%	0	0	0	0	0	0	Intermodal
111 HMO23WCI18-09	15.55	15.55	15.55	10.30	0	10.30	0	0	0.00%	0	0	0	0	0	0	Intermodal
112 HMO23WCI18-10	17.87	4.23	17.87	39.24	10.00	49.24	0	0	0.00%	0	0	0	0	0	0	Intermodal
113 HMO23WCI18-11	17.87	4.23	17.87	39.24	10.00	49.24	0	0	0.00%	0	0	0	0	0	0	Intermodal
114 HMO23WCI18-12	17.81	4.23	17.81	39.26	10.00	49.26	0	0	0.00%	0	0	0	0	0	0	Intermodal
115 HMO23WCI18-13	19.12	10.12	19.12	10.12	0	10.12	0	0	0.00%	0	0	0	0	0	0	Intermodal
116 HMO23WCI18-14	15.83	15.83	15.83	10.46	0	10.46	0	0	0.00%	0	0	0	0	0	0	Intermodal
117 HMO23WCI18-15	15.83	15.83	15.83	10.46	0	10.46	0	0	0.00%	0	0	0	0	0	0	Intermodal
118 HMO23WCI18-09	17.81	4.23	17.81	39.25	10.00	49.25	0	0	0.00%	0	0	0	0	0	0	Intermodal
119 HMO23WCI18-10	15.16	15.16	15.16	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Intermodal
120 HMO23WCI18-11	15.16	15.16	15.16	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Intermodal
121 HMO23WCI18-12	16.24	16.24	16.24	10.28	0	10.28	0	0	0.00%	0	0	0	0	0	0	Intermodal
122 HMO23WCI18-13	16.24	16.24	16.24	10.28	0	10.28	0	0	0.00%	0	0	0	0	0	0	Intermodal
123 LOR24WCI18-09	16.71	2.43	16.71	10.14	1.00	11.14	0	0	0.00%	0	0	0	0	0	0	Local
124 LOR24WCI18-10	9.06	2.17	9.06	10.53	1.00	11.53	0	0	0.00%	0	0	0	0	0	0	Local
125 LOR24WCI18-11	9.06	2.17	9.06	10.53	1.00	11.53	0	0	0.00%	0	0	0	0	0	0	Local
126 LOR24WCI18-12	11.29	11.29	11.29	10.21	0	10.21	0	0	0.00%	0	0	0	0	0	0	Local
127 LOR24WCI18-13	11.29	11.29	11.29	10.21	0	10.21	0	0	0.00%	0	0	0	0	0	0	Local
128 LOR24WCI18-14	10.27	10.27	10.27	10.26	0	10.26	0	0	0.00%	0	0	0	0	0	0	Local
129 LOR24WCI18-15	9.61	9.61	9.61	10.59	0	10.59	0	0	0.00%	0	0	0	0	0	0	Local
130 HMO13WCI18-09	11.15	11.15	11.15	10.22	0	10.22	0	0	0.00%	0	0	0	0	0	0	Multi-Level
131 HMO13WCI18-10	11.15	11.15	11.15	10.22	0	10.22	0	0	0.00%	0	0	0	0	0	0	Multi-Level
132 HMO13WCI18-11	14.93	4.26	14.93	39.26	10.00	49.26	0	0	0.00%	0	0	0	0	0	0	Multi-Level
133 HMO13WCI18-12	14.93	4.26	14.93	39.26	10.00	49.26	0	0	0.00%	0	0	0	0	0	0	Multi-Level
134 HMO13WCI18-13	17.81	4.23	17.81	39.26	10.00	49.26	0	0	0.00%	0	0	0	0	0	0	Multi-Level
135 HMO13WCI18-14	17.81	4.23	17.81	39.26	10.00	49.26	0	0	0.00%	0	0	0	0	0	0	Multi-Level
136 HMO13WCI18-15	15.42	15.42	15.42	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Multi-Level
137 HMO13WCI18-09	15.42	15.42	15.42	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Multi-Level
138 HMO13WCI18-10	15.42	15.42	15.42	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Multi-Level
139 HMO13WCI18-11	15.42	15.42	15.42	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Multi-Level
140 HMO13WCI18-12	15.42	15.42	15.42	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Multi-Level
141 HMO13WCI18-13	15.42	15.42	15.42	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Multi-Level
142 HMO13WCI18-14	15.42	15.42	15.42	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Multi-Level
143 HMO13WCI18-15	15.42	15.42	15.42	10.35	0	10.35	0	0	0.00%	0	0	0	0	0	0	Multi-Level
144 PHE20WCI18-09	13.44	13.44	13.44	13.45	0	13.45	0	0	0.00%	0	0	0	0	0	0	Premium Intermodal
145 PHE20WCI18-10	13.44	13.44	13.44	13.45	0	13.45	0	0	0.00%	0	0	0	0	0	0	Premium Intermodal
146 PHE20WCI18-11	13.44	13.44	13.44	13.45	0	13.45	0	0	0.00%	0	0	0	0	0	0	Premium Intermodal
147 PHE20WCI18-12	13.44	13.44	13.44	13.45	0	13.45	0	0	0.00%	0	0	0	0	0	0	Premium Intermodal
148 PHE20WCI18-13	13.44	13.44	13.44	13.45	0	13.45	0	0	0.00%	0	0	0	0	0	0	Premium Intermodal
149 PHE20WCI18-14	13.44	13.44	13.44	13.45	0	13.45	0	0	0.00%	0	0	0	0	0	0	Premium Intermodal
150 PHE20WCI18-15	13.44	13.44	13.44	13.45	0	13.45	0	0	0.00%	0	0	0	0	0	0	Premium Intermodal

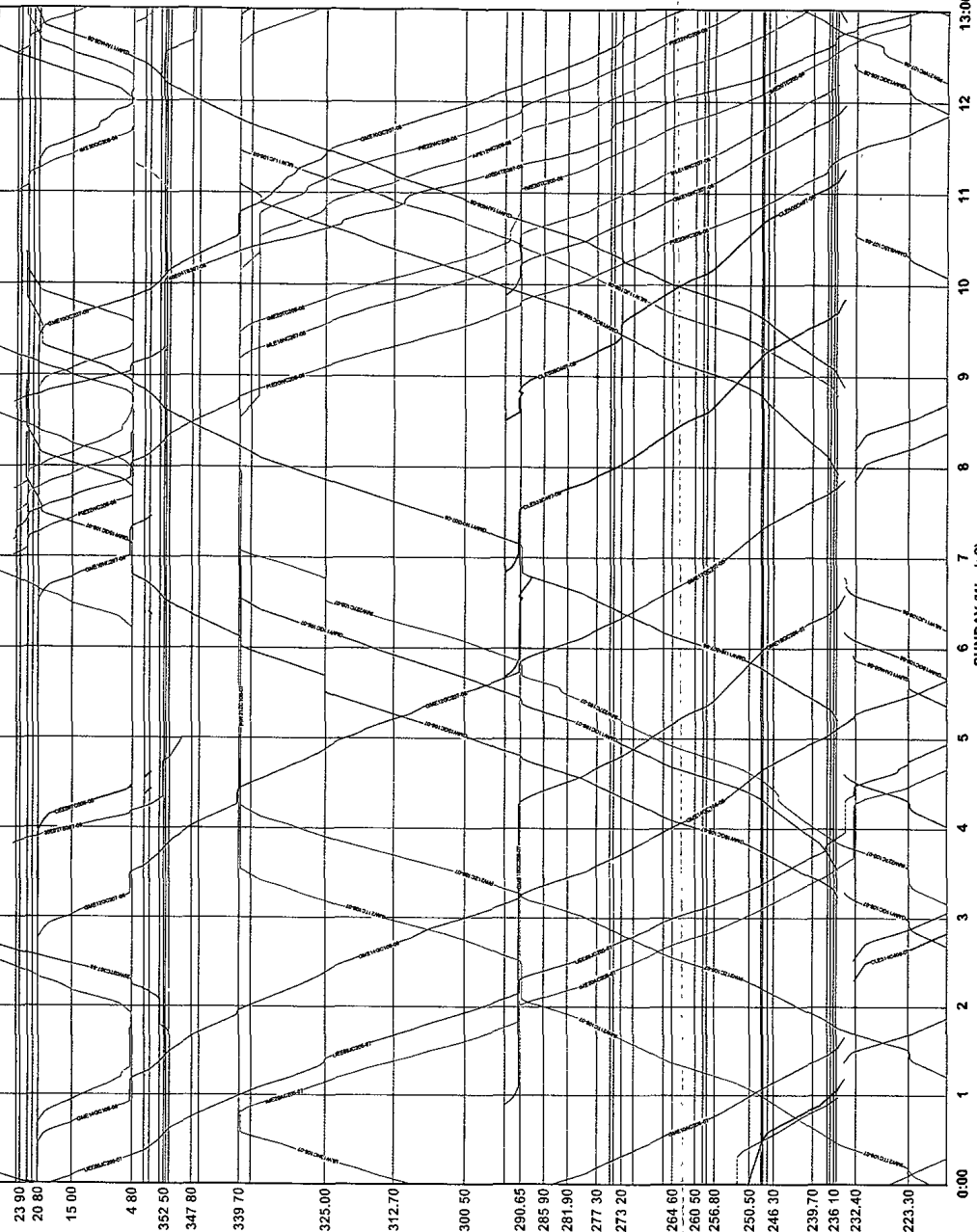


Attachment F



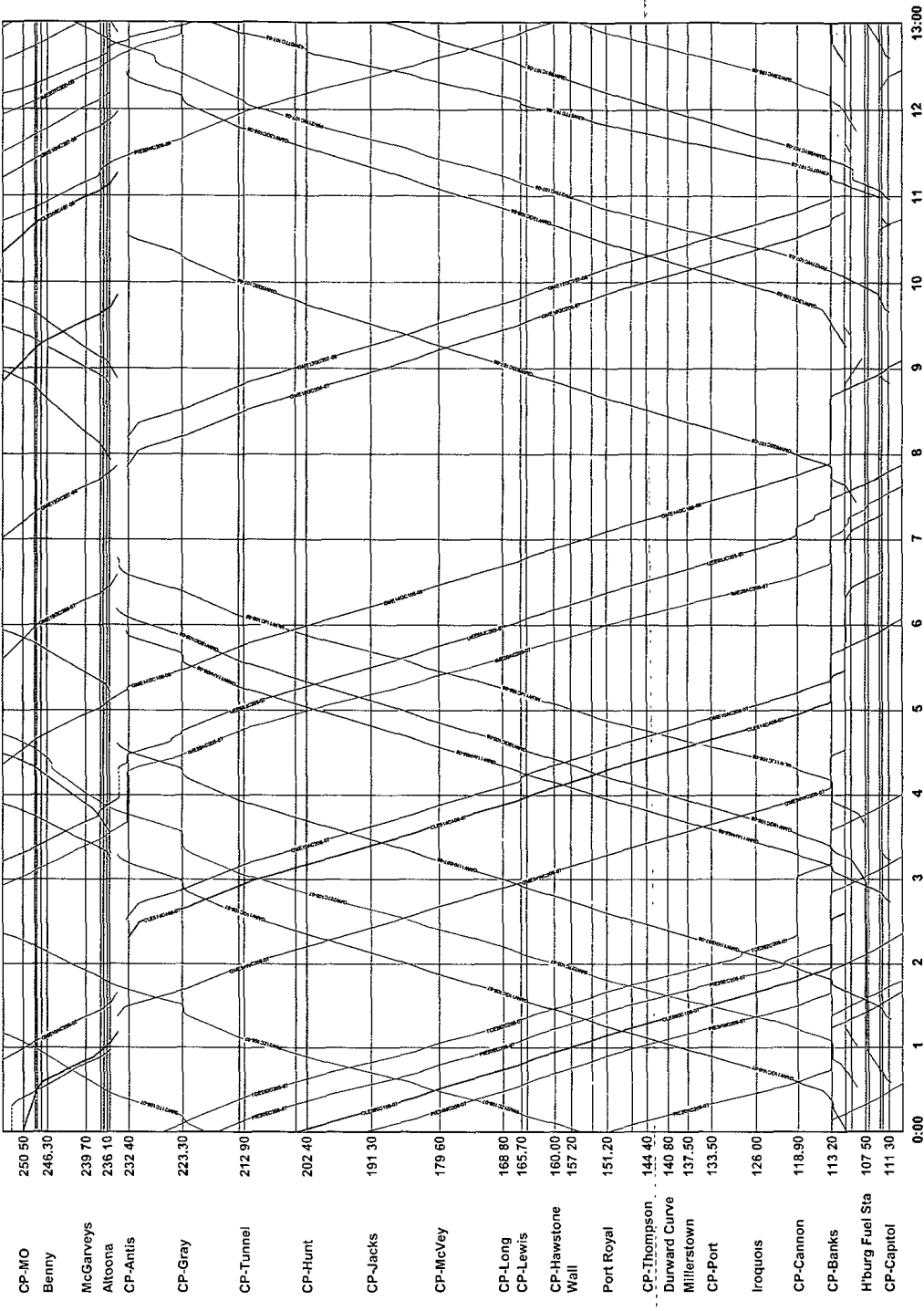
Attachment F-1

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00
 SUNDAY (Week 2)
 All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:21:30

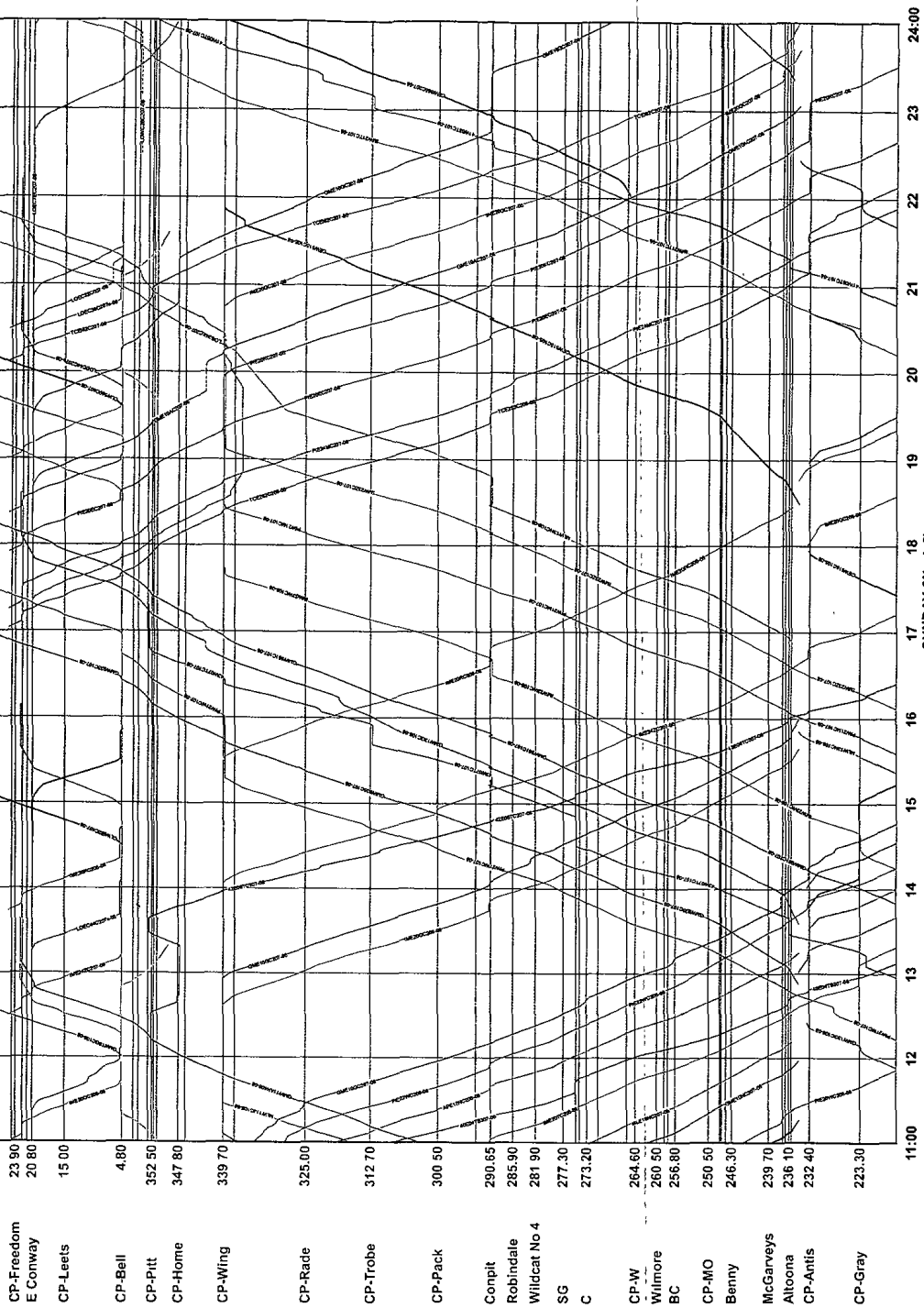
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



CP-MO	250.50
Benny	246.30
McGarveys	239.70
Altoona	236.10
CP-Antis	232.40
CP-Gray	223.30
CP-Tunnel	212.90
CP-Hunt	202.40
CP-Jacks	191.30
CP-McVey	179.60
CP-Long	168.80
CP-Lewis	165.70
CP-Hawstone	160.00
Wall	157.20
Port Royal	151.20
CP-Thompson	144.40
Durward Curve	140.80
Millerstown	137.50
CP-Port	133.50
Iroquois	126.00
CP-Cannon	118.90
CP-Banks	113.20
H'burg Fuel Sta	107.50
CP-Capitol	111.30

0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00
 SUNDAY (Week 2)
 All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:21:42

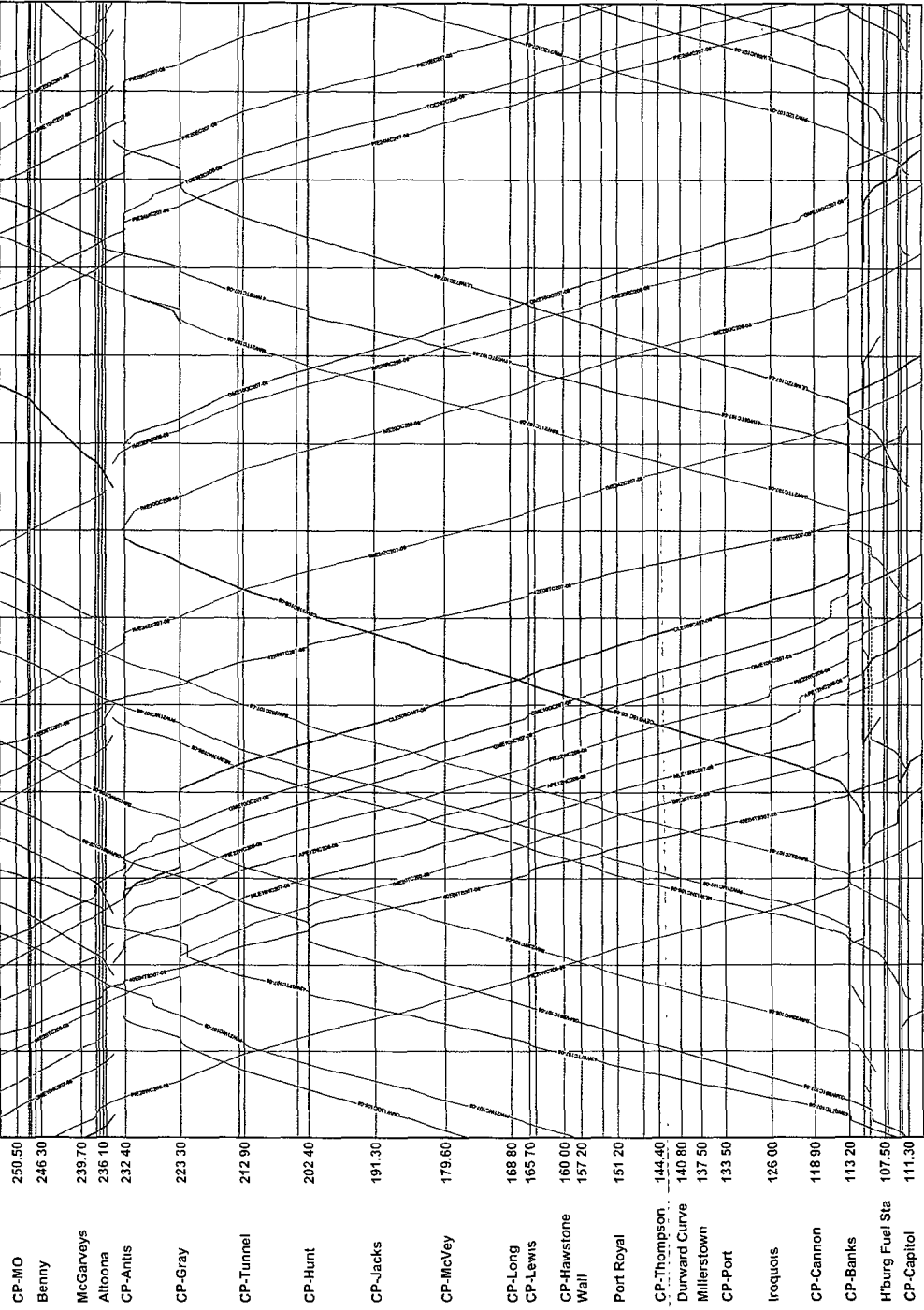
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

SUNDAY (Week 2)
 All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:22:05

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

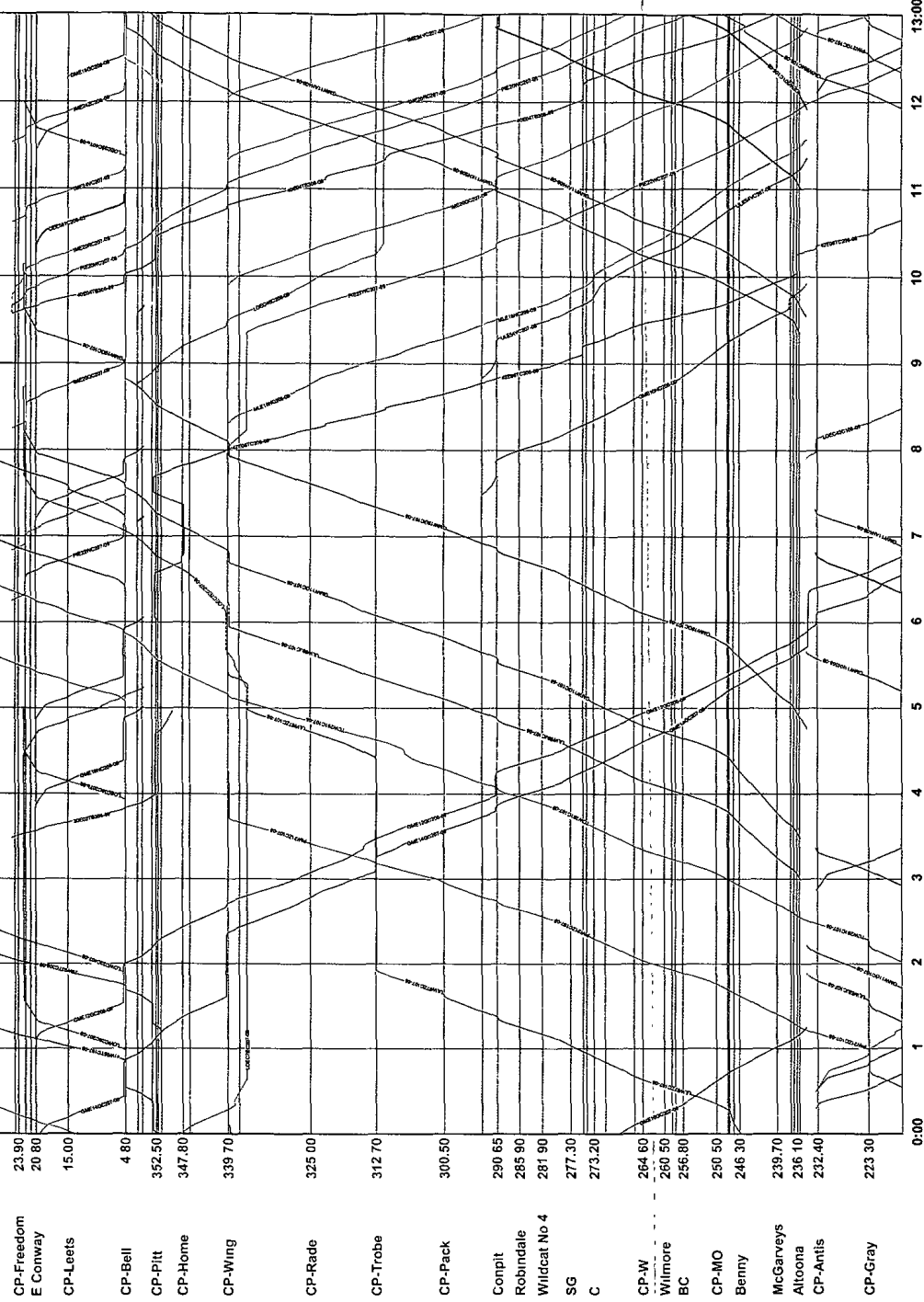


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SUNDAY (Week 2)

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:22:17

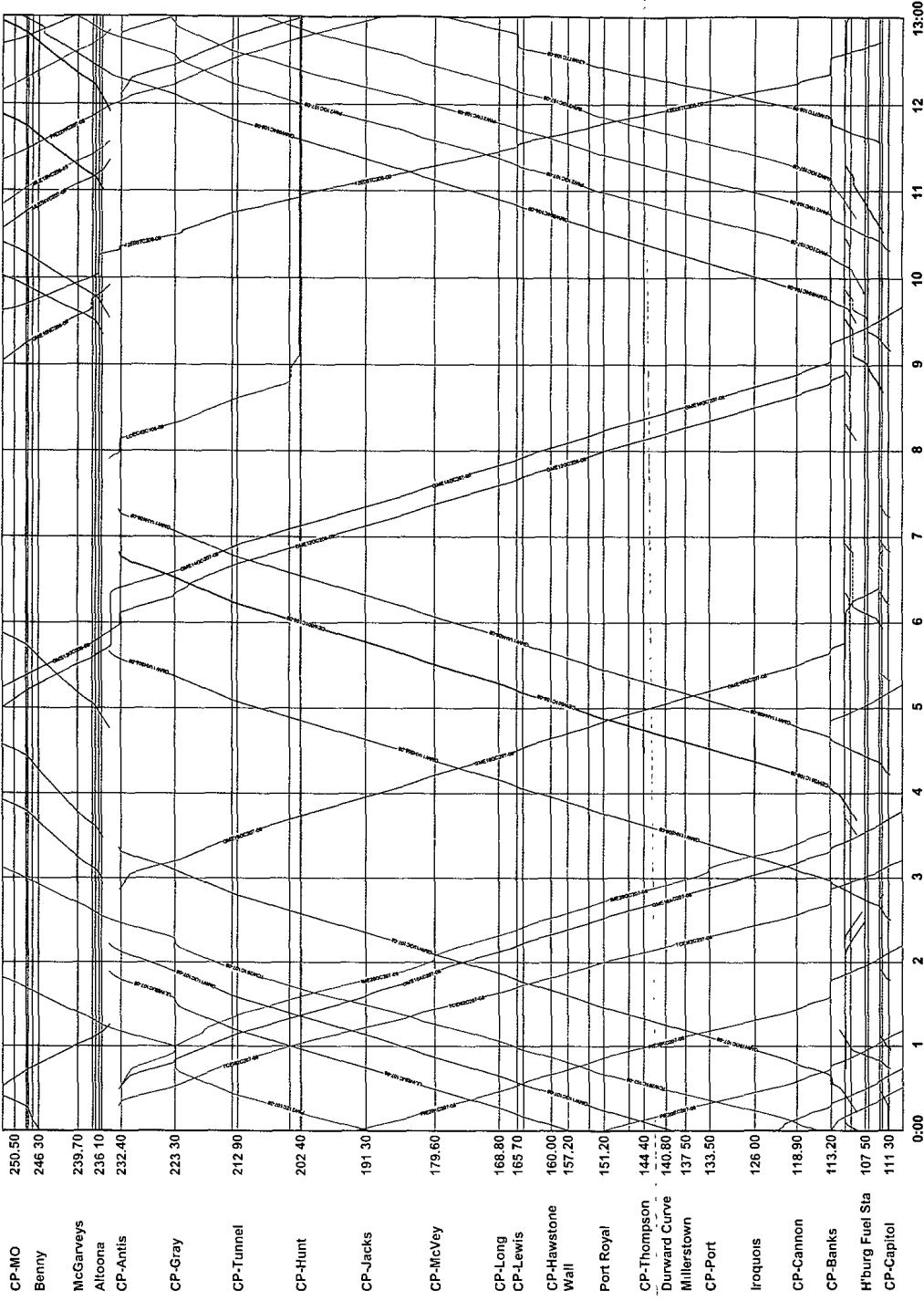
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

MONDAY (Week 2) All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:23:21

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

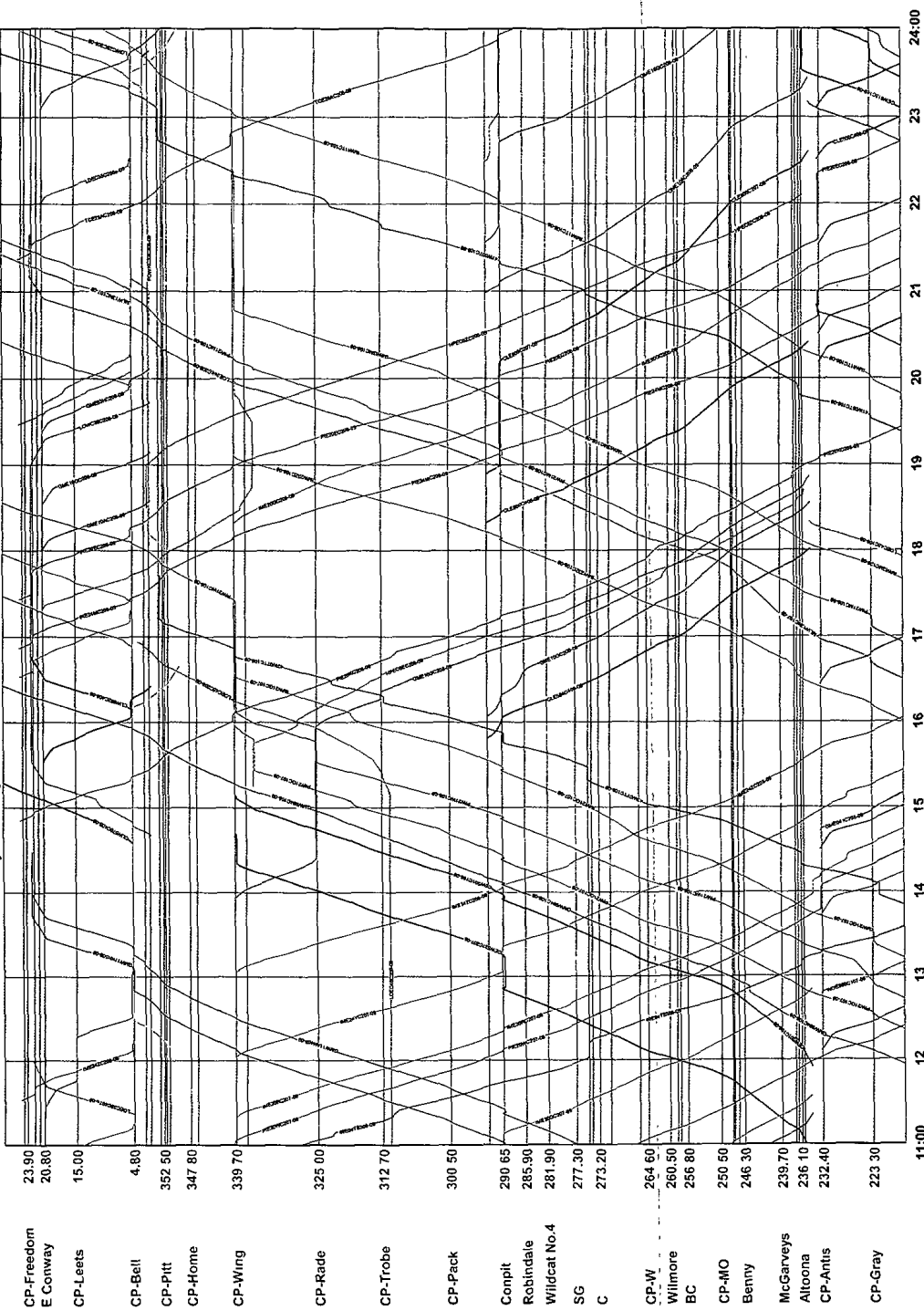


0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

MONDAY (Week 2) Run time: 11 January 2005 14:23:31
 RTC version: 2.60 L32E

All times displayed in Eastern time

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

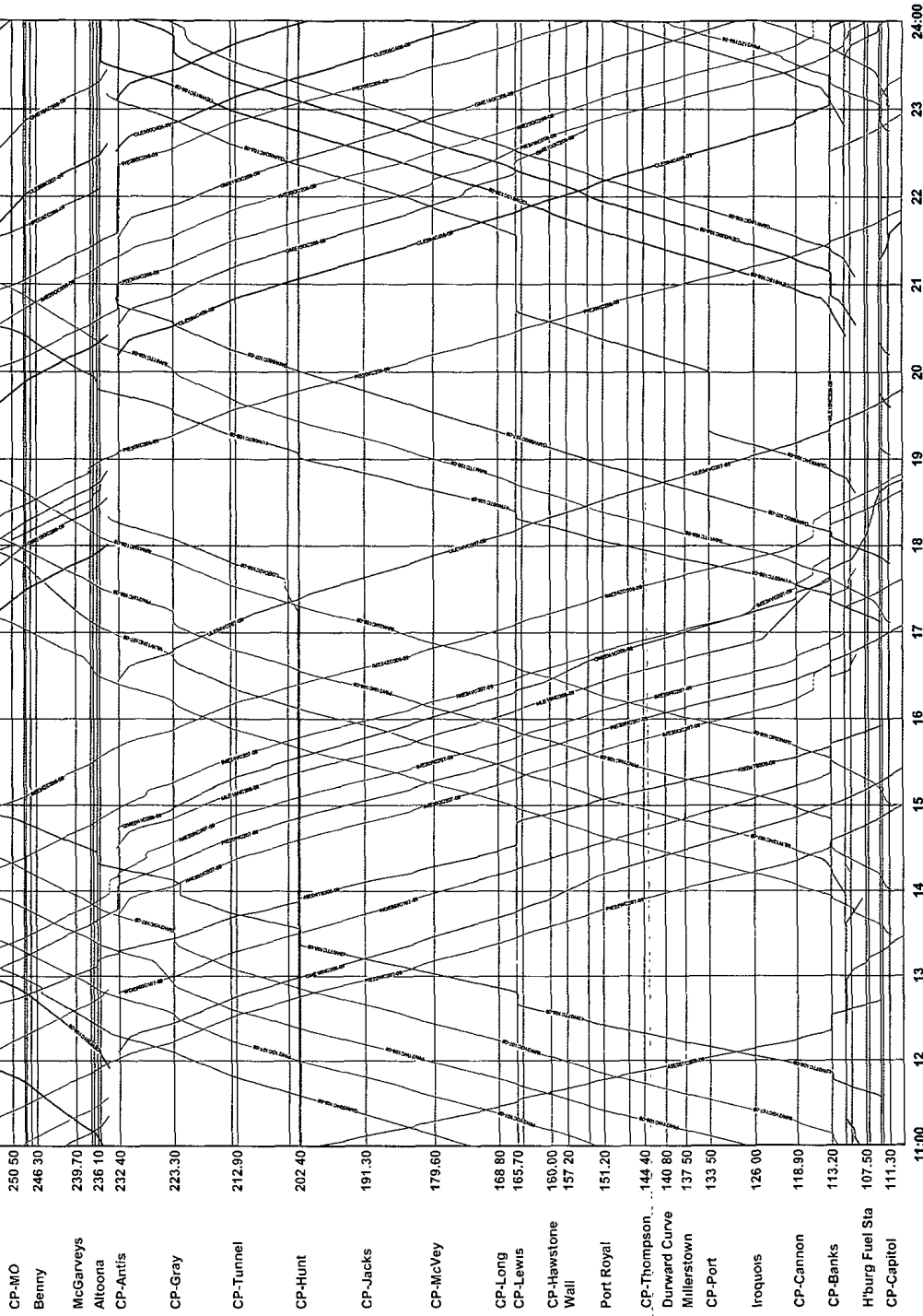


CP-Freedom 23.90
 E-Conway 20.80
 CP-Leets 15.00
 CP-Bell 4.80
 CP-Pitt 352.50
 CP-Home 347.80
 CP-Wing 339.70
 CP-Rade 325.00
 CP-Trobe 312.70
 CP-Pack 300.50
 Conpit 290.65
 Robindale 285.90
 Wildcat No.4 281.90
 SG 277.30
 C 273.20
 CP-W 264.60
 Wilmore 260.50
 BC 256.80
 CP-MO 250.50
 Benny 246.30
 McGarveys 239.70
 Altoona 236.10
 CP-Antis 232.40
 CP-Grey 223.30

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

MONDAY (Week 2)
 All times displayed in Eastern time
 RTC version: 2.60 L32E
 Run time: 11 January 2005 14:23:51

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



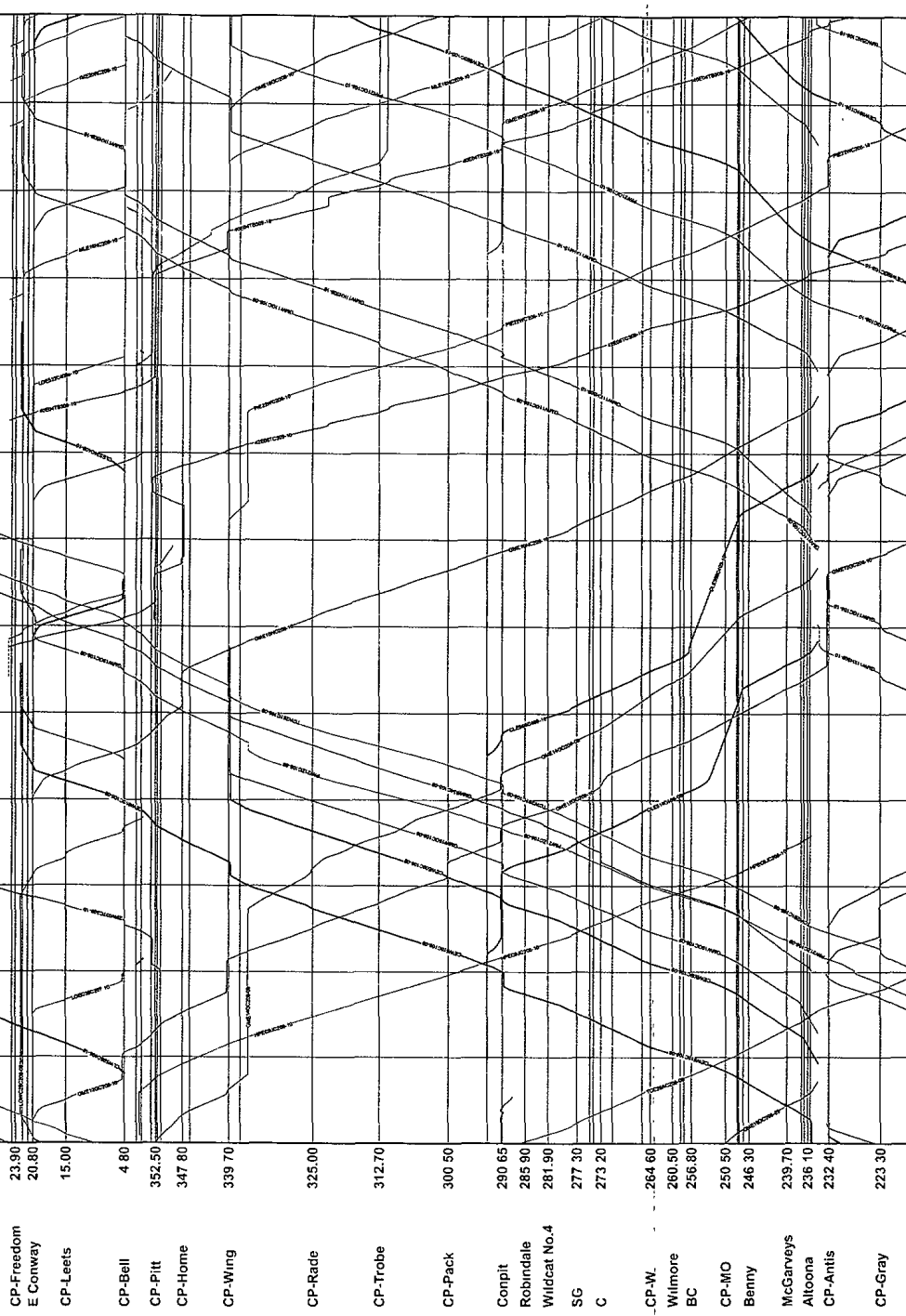
CP-MO	250.50
Benny	246.30
McGarveys	239.70
Altoona	236.10
CP-Antis	232.40
CP-Gray	223.30
CP-Tunnel	212.90
CP-Hunt	202.40
CP-Jacks	191.30
CP-McVey	179.60
CP-Long	168.80
CP-Lewis	165.70
CP-Hawstone	160.00
Wall	157.20
Port Royal	151.20
CP-Thompson	144.40
Durward Curve	140.80
Millerstown	137.50
CP-Port	133.50
Iroquois	126.00
CP-Cannon	118.90
CP-Banks	113.20
H'burg Fuel Sta	107.50
CP-Capitol	111.30

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

MONDAY (Week 2)

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:24:02

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



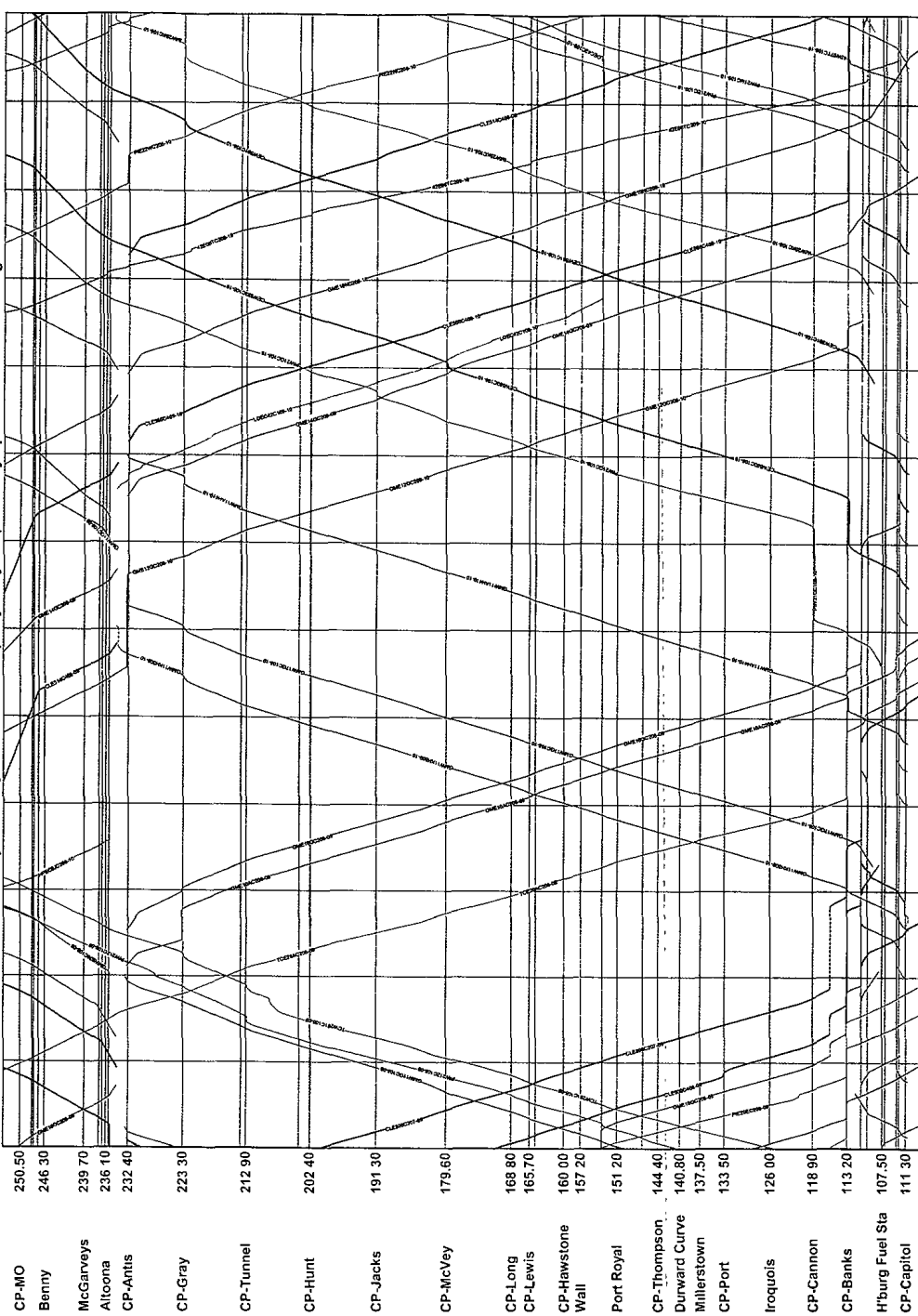
0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

TUESDAY (Week 2) Run time: 11 January 2005 14:25:02
 RTC version: 2.60 L32E

- CP-Freedom 23.90
- E Conway 20.80
- CP-Leets 15.00
- CP-Bell 4.80
- CP-Pitt 352.50
- CP-Home 347.80
- CP-Wing 339.70
- CP-Rade 325.00
- CP-Trobe 312.70
- CP-Pack 300.50
- Compit 290.65
- Robindale 285.90
- Wildcat No.4 281.90
- SC 277.30
- C 273.20
- CP-W. 264.60
- Wilmore 260.50
- BC 256.80
- CP-MO 250.50
- Benny 246.30
- McGarveys 239.70
- Altoona 236.10
- CP-Antis 232.40
- CP-Gray 223.30



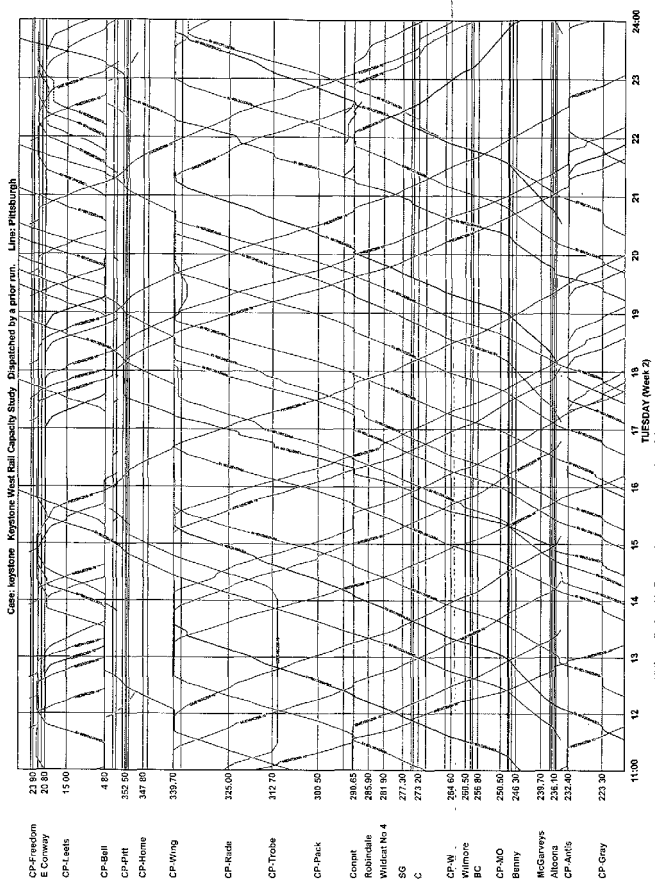
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

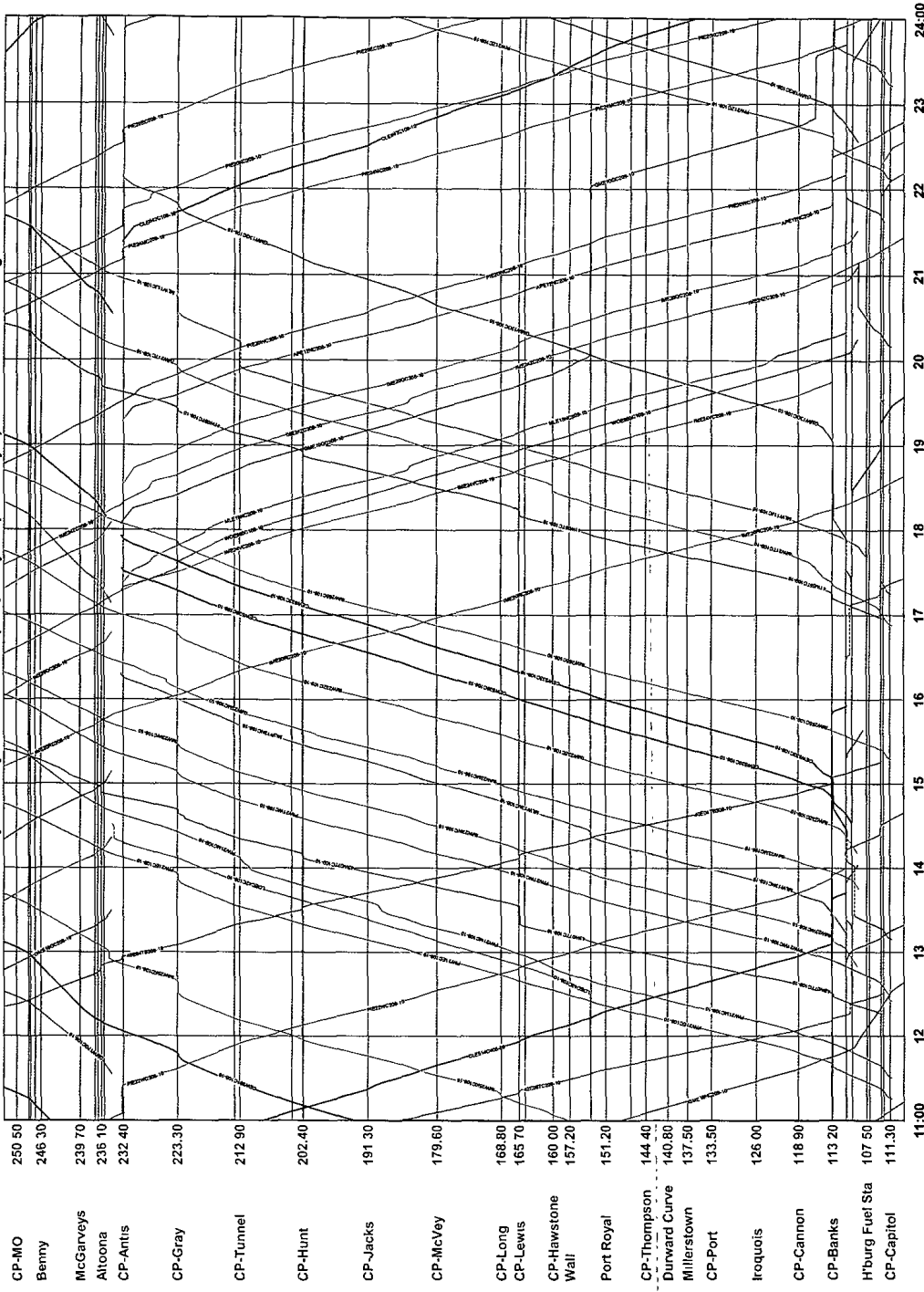
TUESDAY (Week 2)

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:25 12



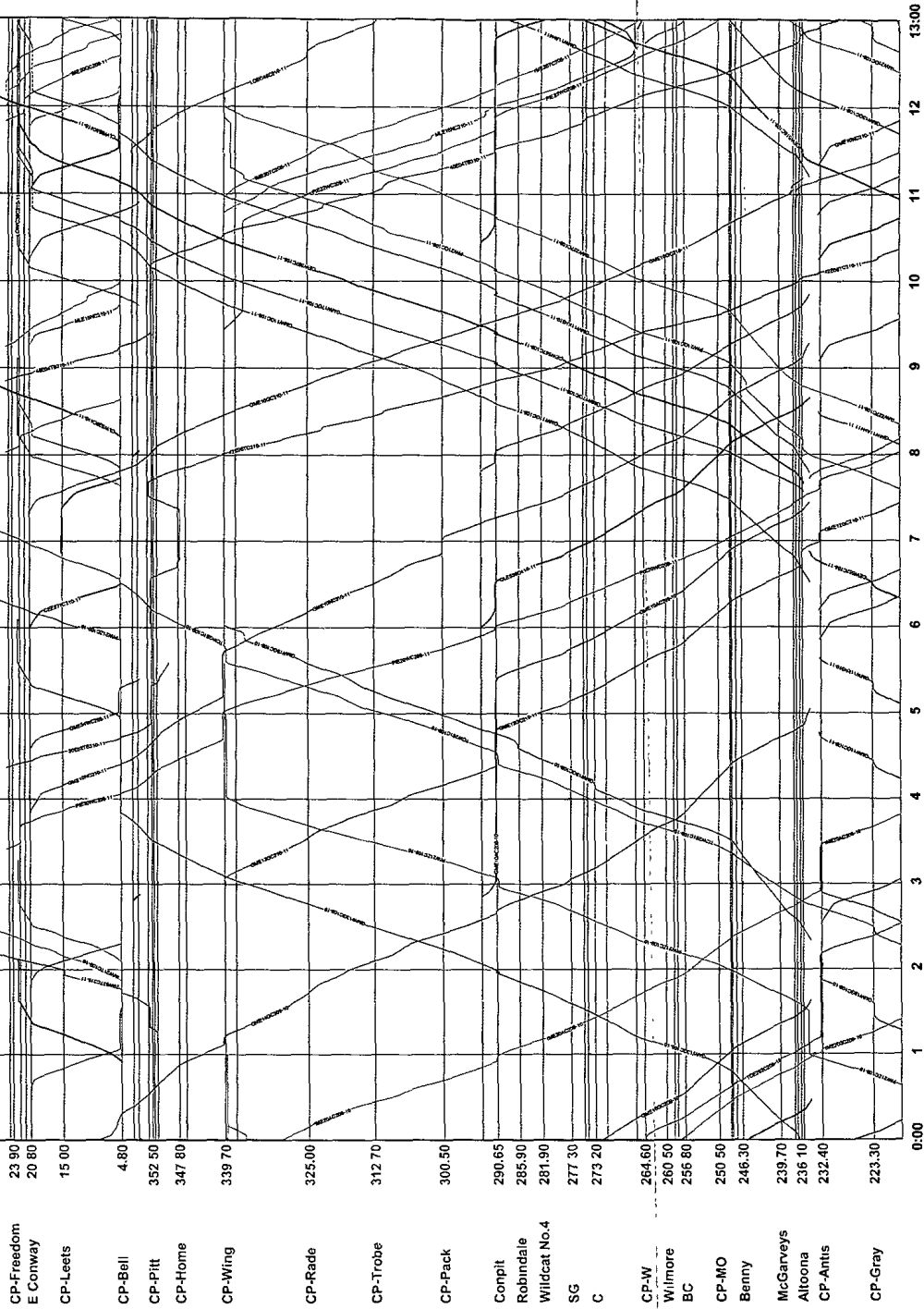
All times displayed in Eastern time
 RTC version: 2.08.L32E
 Run time: 11 January 2005 14:25:35
 TUESDAY (Week 2)
 11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00
 TUESDAY (Week 2)
 All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:25:47

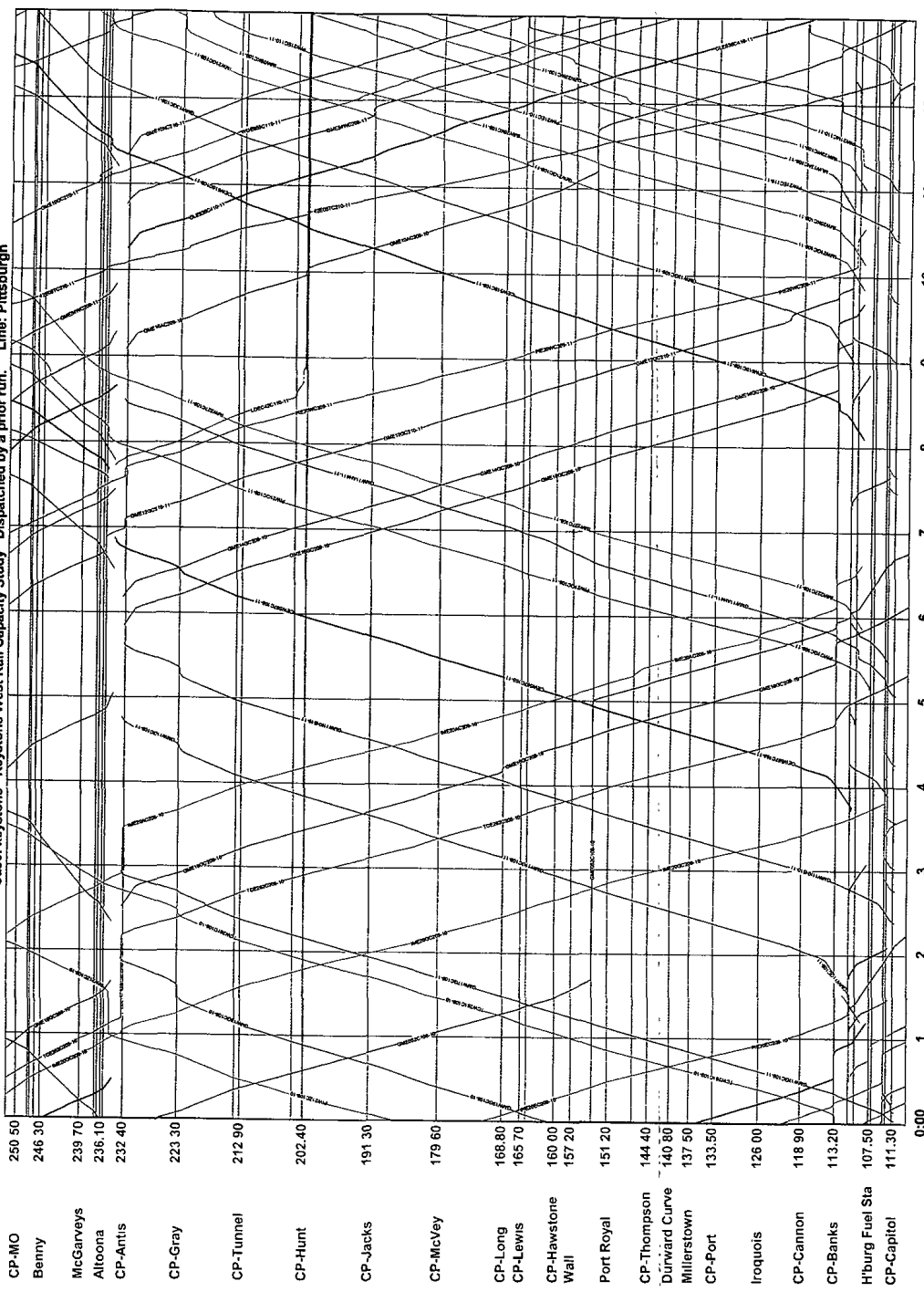
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

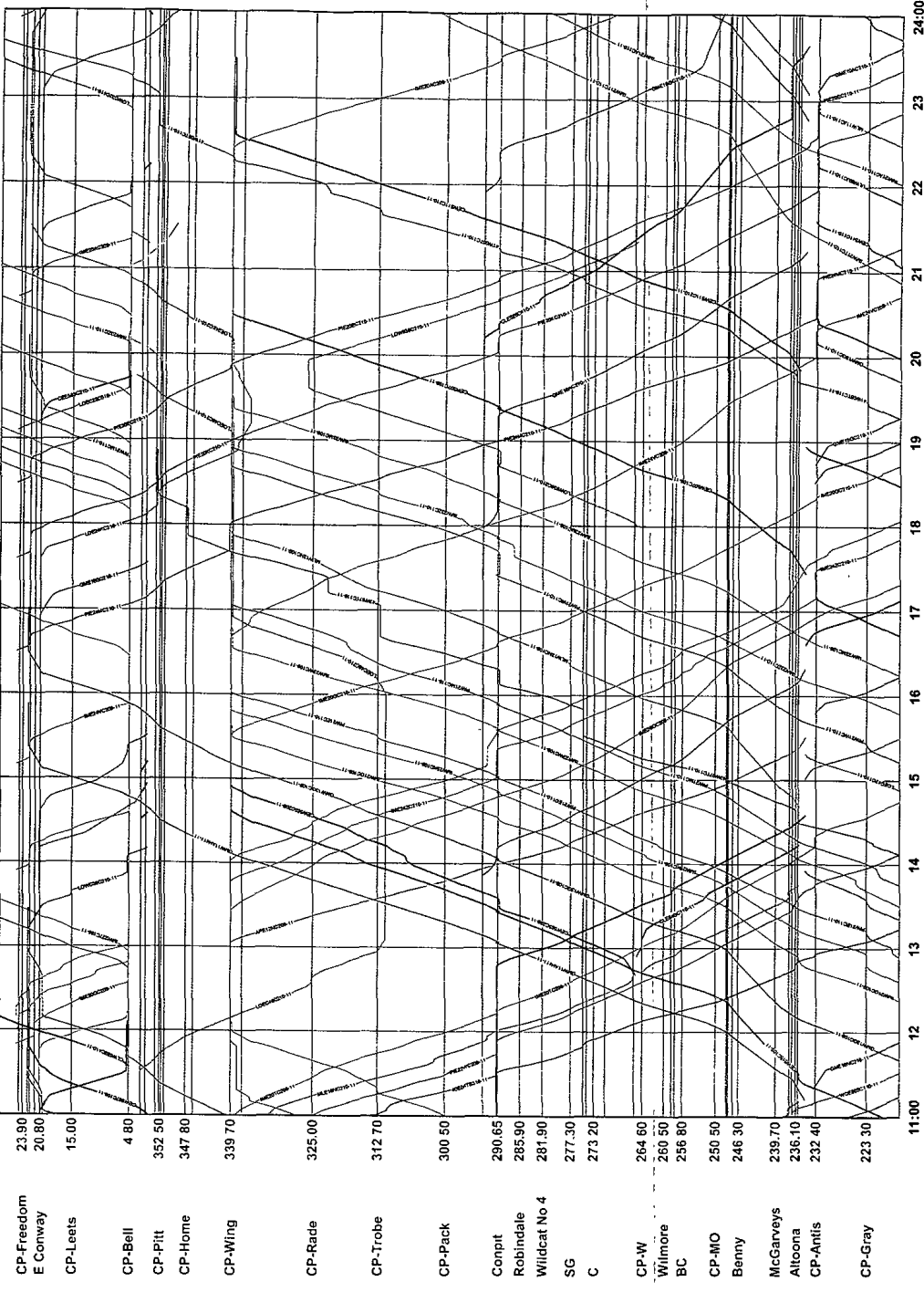
WEDNESDAY (Week 2) RTC version: 2.60 L32E Run time: 11 January 2005 14:27:14

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



All times displayed in Eastern time
 WEDNESDAY (Week 2)
 RTC version: 2.60 L32E Run time: 11 January 2005 14:27:24

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



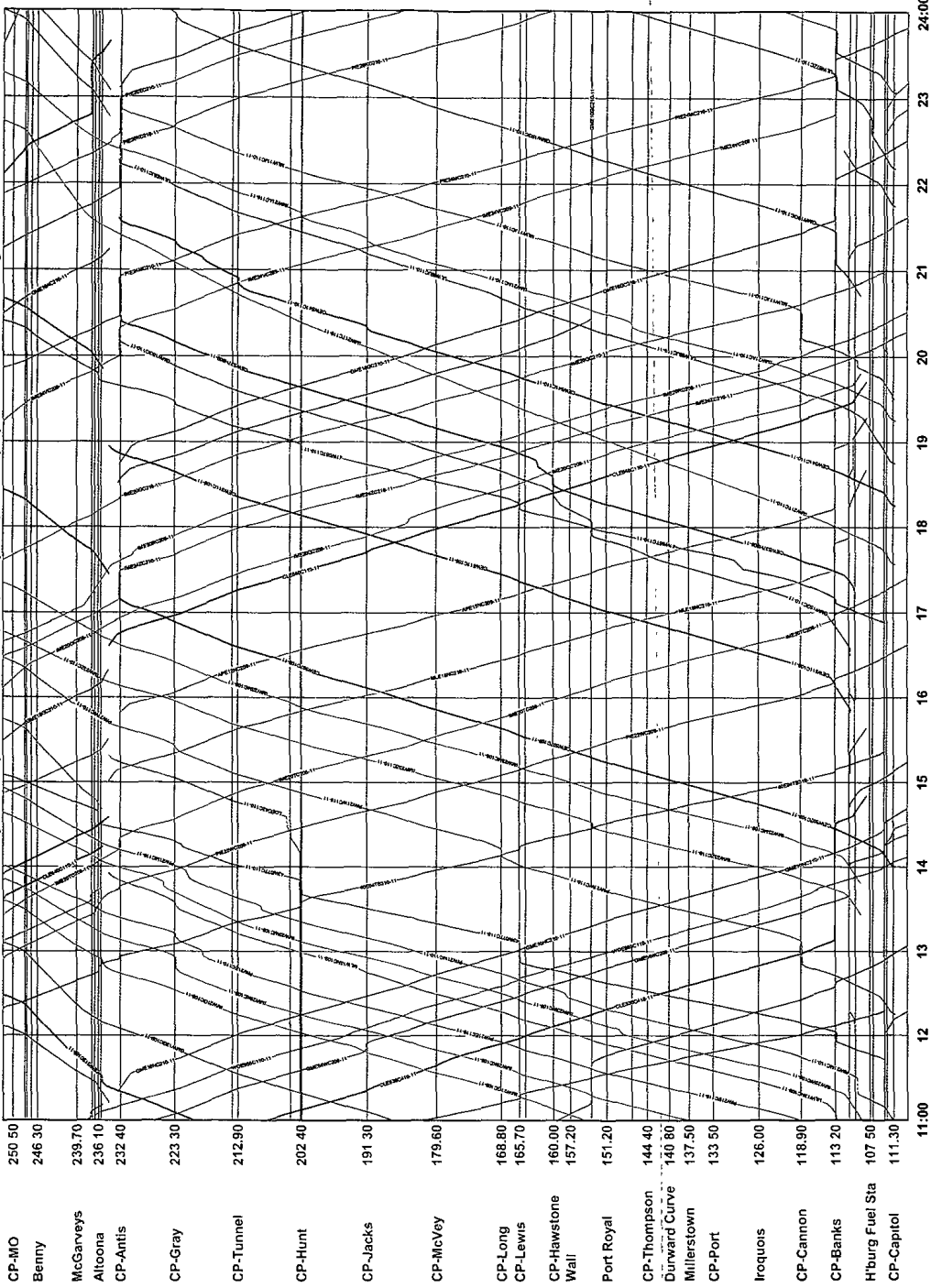
CP-Freedom	23.90
E Conway	20.80
CP-Leets	15.00
CP-Bell	4.80
CP-Pitt	352.50
CP-Home	347.80
CP-Wing	339.70
CP-Rade	325.00
CP-Trobe	312.70
CP-Pack	300.50
Conrpt	290.65
Robindale	285.90
Wildcat No 4	281.90
SG	277.30
C	273.20
CP-W	264.60
Wilmore	260.50
BC	256.80
CP-MO	250.50
Benny	246.30
McGarveys	239.70
Altoona	236.10
CP-Anfis	232.40
CP-Gray	223.30

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

WEDNESDAY (Week 2) RTC version: 2 60 L32E Run time: 11 January 2005 14:27:52

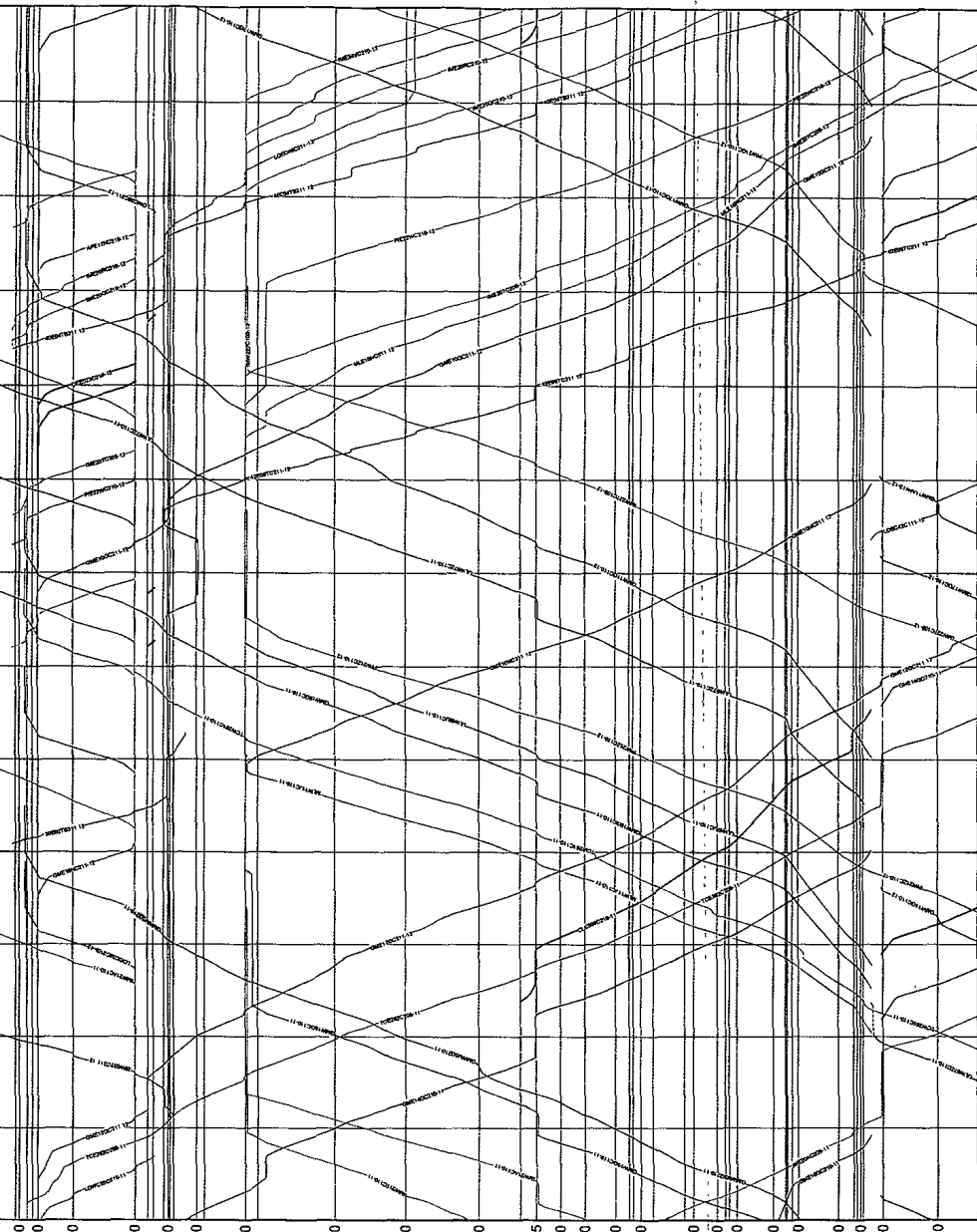
All times displayed in Eastern time

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



RTC version: 2.60 L32E Run time: 11 January 2005 14:28:04

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

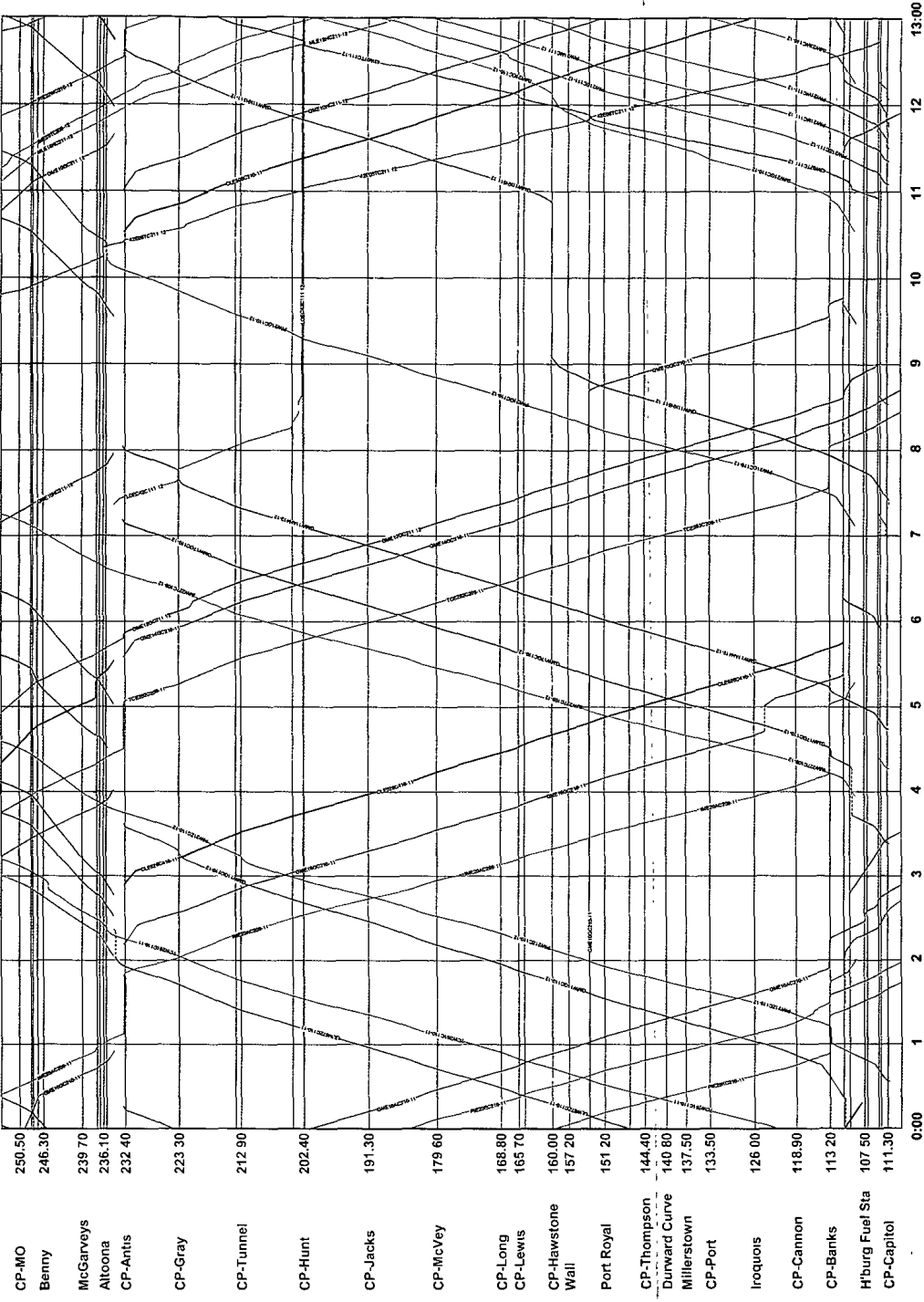


0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

THURSDAY (Week 2)

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:29:01

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

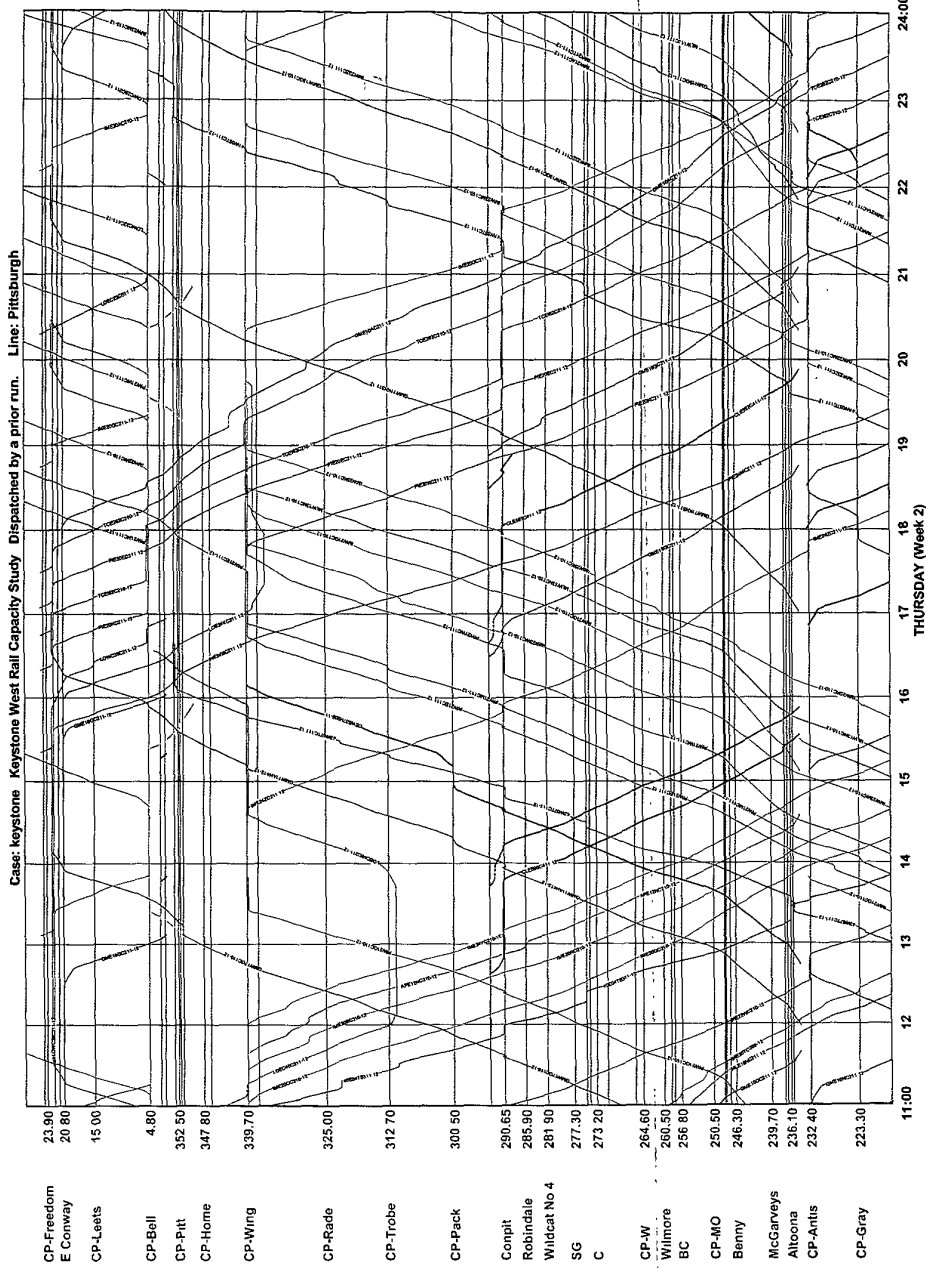


CP-MO	250.50
Benny	246.30
McCarveys	239.70
Altoona	236.10
CP-Antis	232.40
CP-Gray	223.30
CP-Tunnel	212.90
CP-Hunt	202.40
CP-Jacks	191.30
CP-McVey	179.60
CP-Long	168.80
CP-Lewis	165.70
CP-Hawstone Wall	160.00
Port Royal	157.20
CP-Thompson	144.40
Durward Curve	140.80
Millerstown	137.50
CP-Port	133.50
Iroquois	126.00
CP-Cannon	118.90
CP-Banks	113.20
H'burg Fuel Sta	107.50
CP-Capitol	111.30

0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

All times displayed in Eastern time THURSDAY (Week 2) Run time: 11 January 2005 14:29:10

RTC version: 2.60 L32E



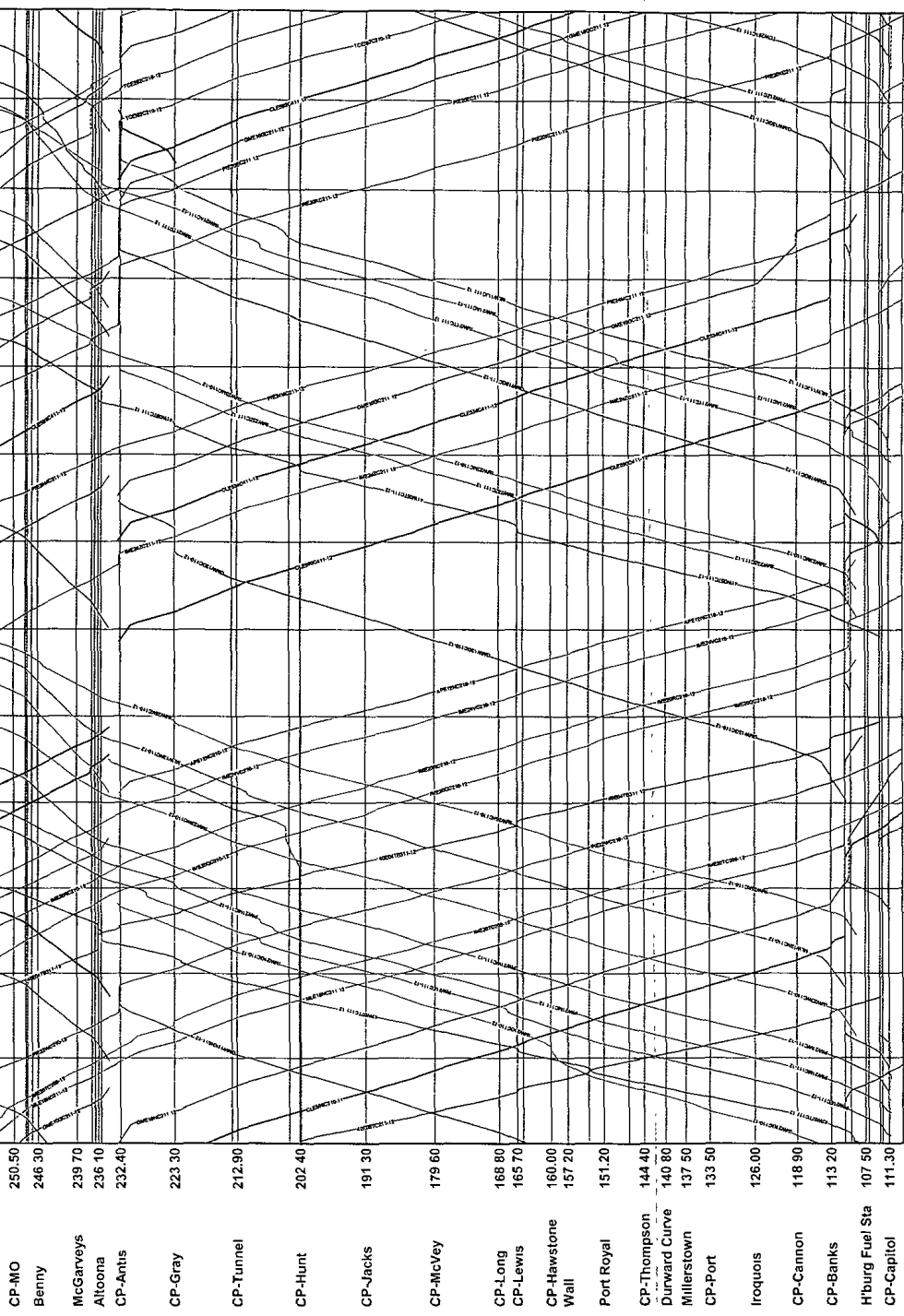
23.90
 20.80
 15.00
 4.80
 352.50
 347.80
 339.70
 325.00
 312.70
 300.50
 290.65
 285.90
 281.90
 277.30
 273.20
 264.60
 260.50
 256.80
 250.50
 246.30
 239.70
 236.10
 232.40
 223.30

CP-Freedom
 E Conway
 CP-Leets
 CP-Bell
 CP-Pitt
 CP-Home
 CP-Wing
 CP-Rade
 CP-Trobe
 CP-Pack
 Conplt
 Robindale
 Wildcat No 4
 SG
 C
 CP-W
 Wilmore
 BC
 CP-MO
 Benny
 McCarveys
 Altoona
 CP-Antis
 CP-Gray

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00
 THURSDAY (Week 2)
 Run time: 11 January 2005 14:29:30
 RTC version: 2.60 L32E

All times displayed in Eastern time

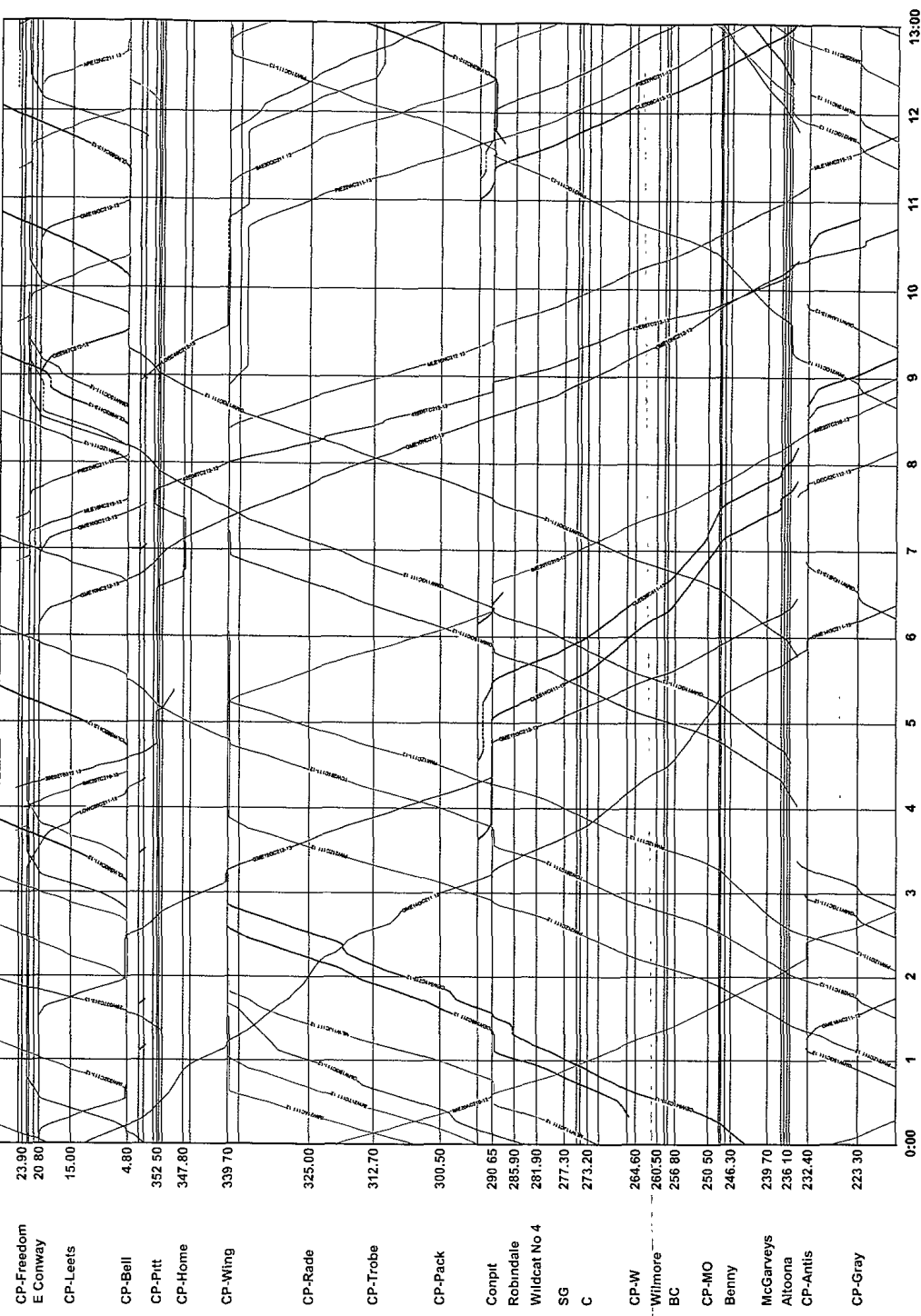
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

All times displayed in Eastern time RTC version: 2.60 L32E THURSDAY (Week 2) Run time: 11 January 2005 14:29:43

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

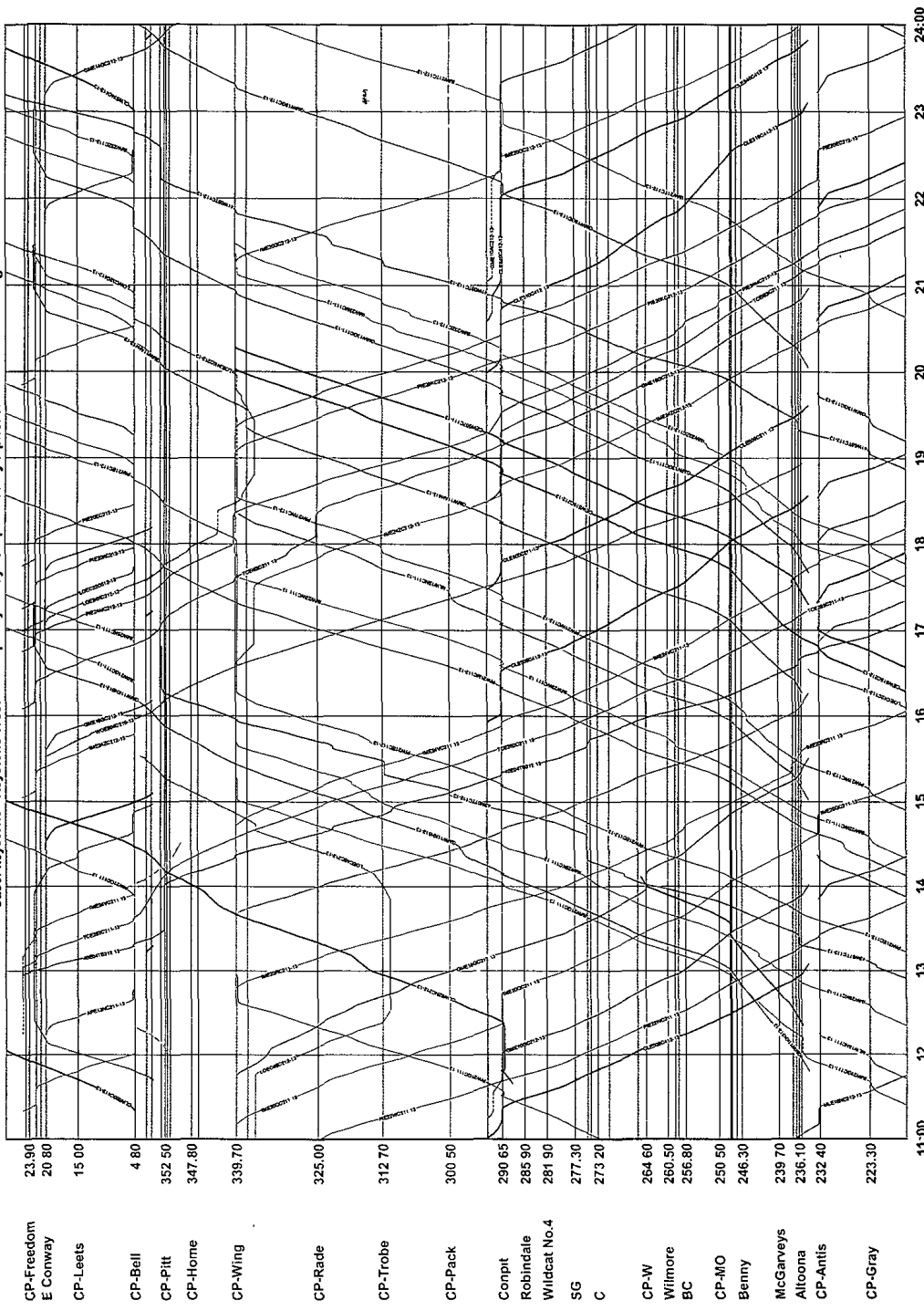


0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

FRIDAY (Week 2) Run time: 11 January 2005 15:15:12
 RTC version: 2.60 L32E

All times displayed in Eastern time

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

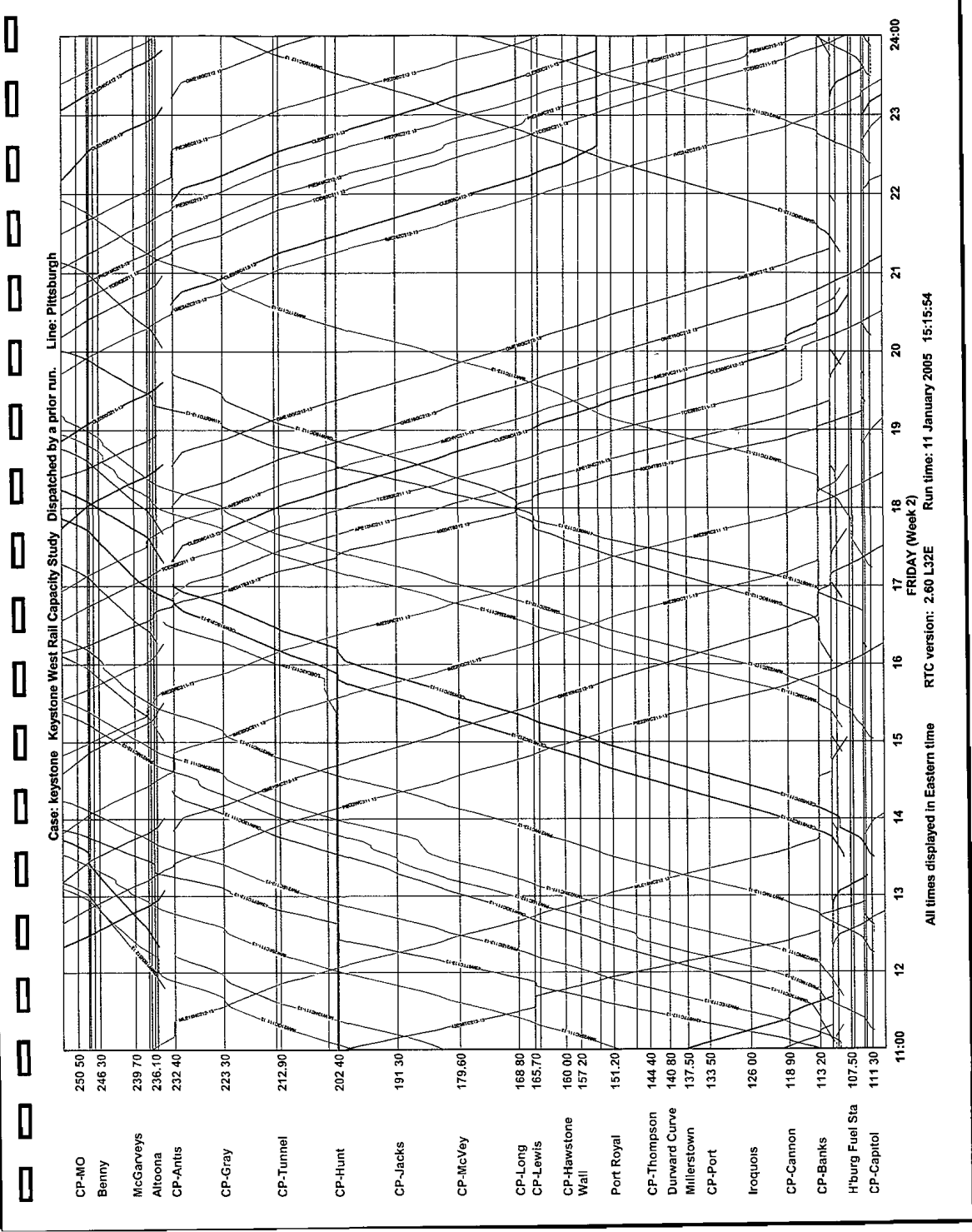


CP-Freedom 23.90
 E-Conway 20.80
 CP-Leets 15.00
 CP-Bell 4.80
 CP-Pitt 352.50
 CP-Home 347.80
 CP-Wing 339.70
 CP-Rade 325.00
 CP-Trobe 312.70
 CP-Pack 300.50
 Conpit 290.65
 Robindale 285.90
 Wildcat No.4 281.90
 SG 277.30
 C 273.20
 CP-W 264.60
 Wilmore 260.50
 BC 256.80
 CP-MO 250.50
 Benny 246.30
 McGarveys 239.70
 Altoona 236.10
 CP-Antis 232.40
 CP-Gray 223.30

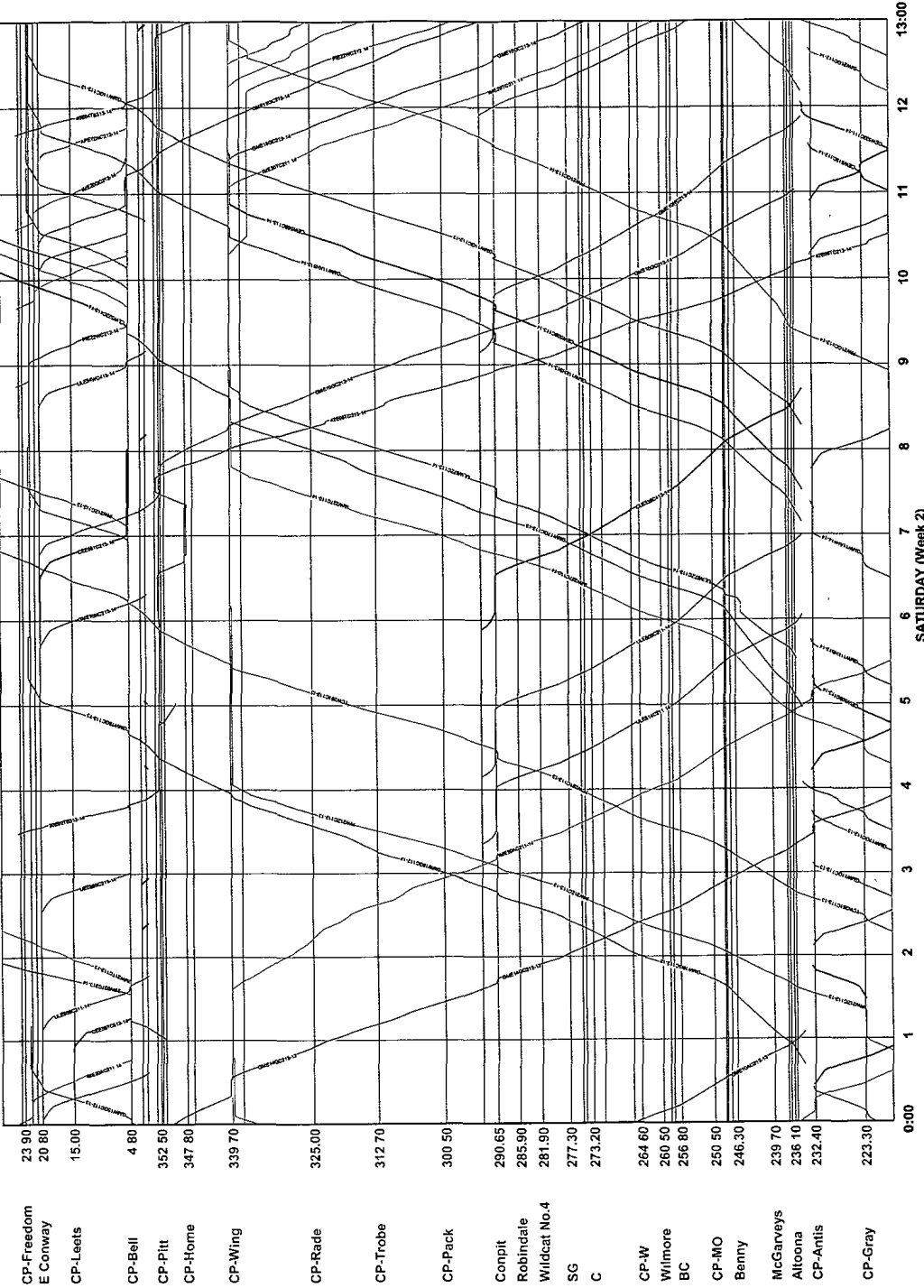
11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

FRIDAY (Week 2)

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 15:15:42

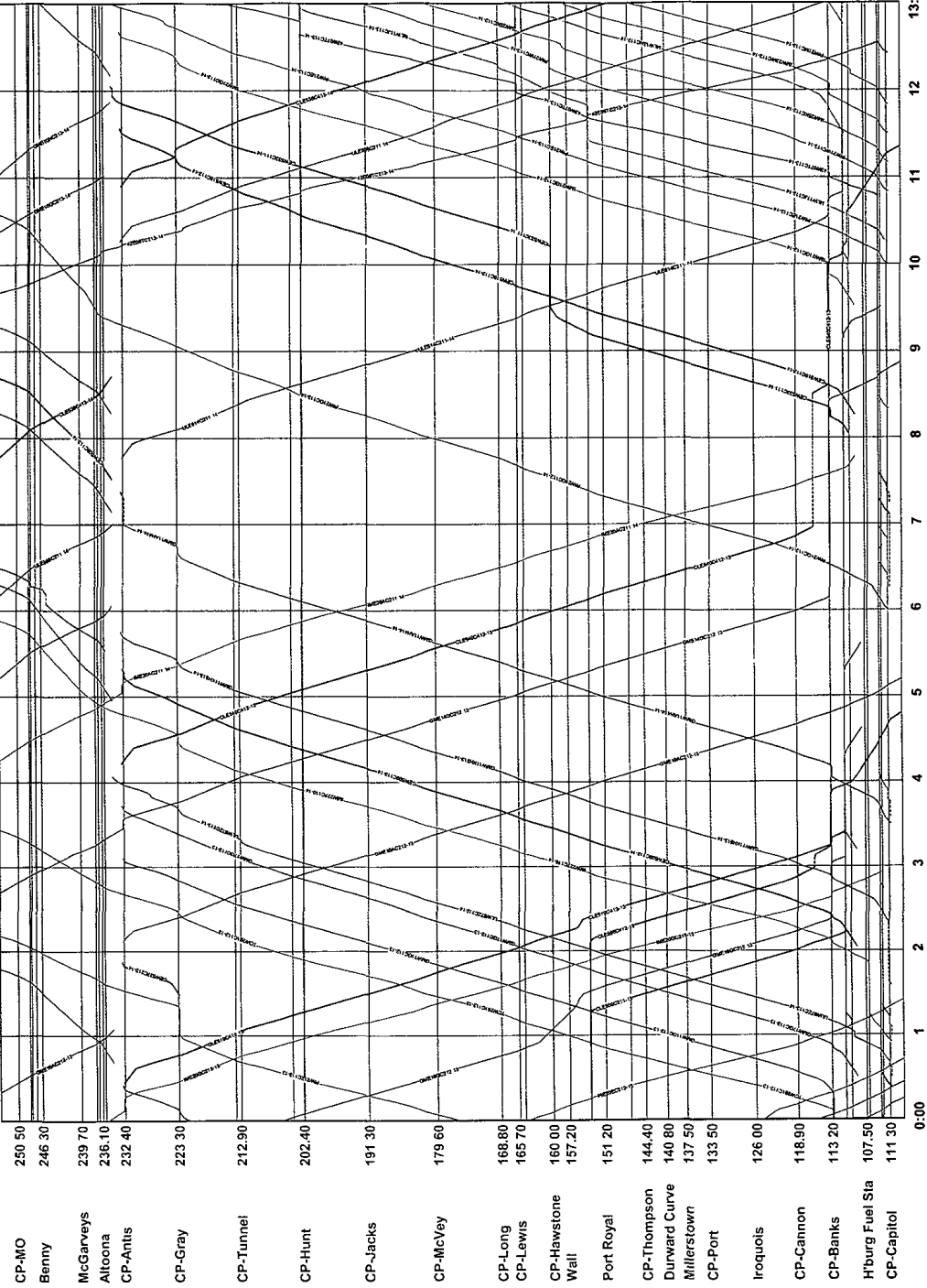


Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00
 SATURDAY (Week 2) RTC version: 2.60 L32E Run time: 11 January 2005 15:17:04
 All times displayed in Eastern time

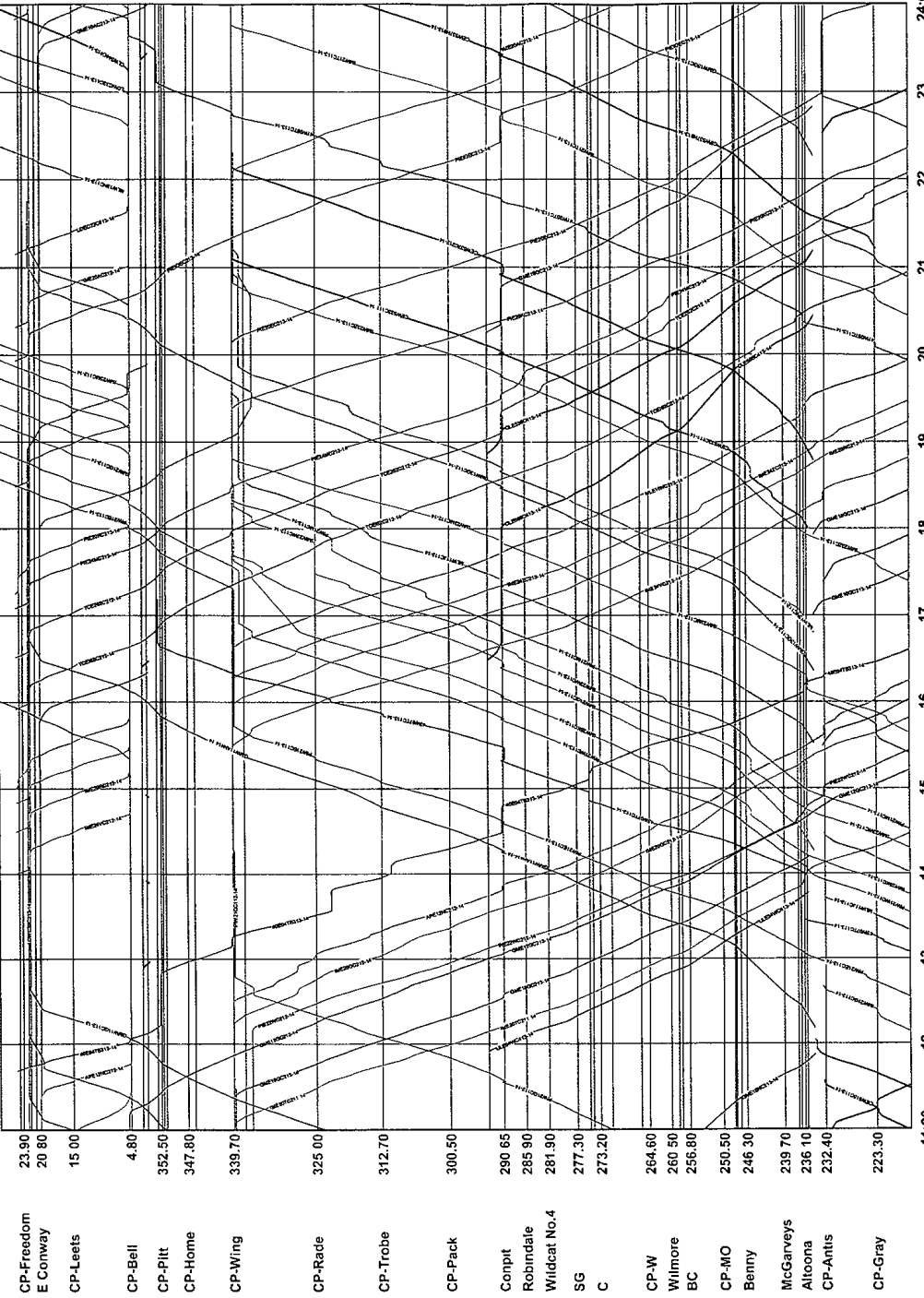
Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

All times displayed in Eastern time
SATURDAY (Week 2)
RTC version: 2.60 L32E Run time: 11 January 2005 15:17:14

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

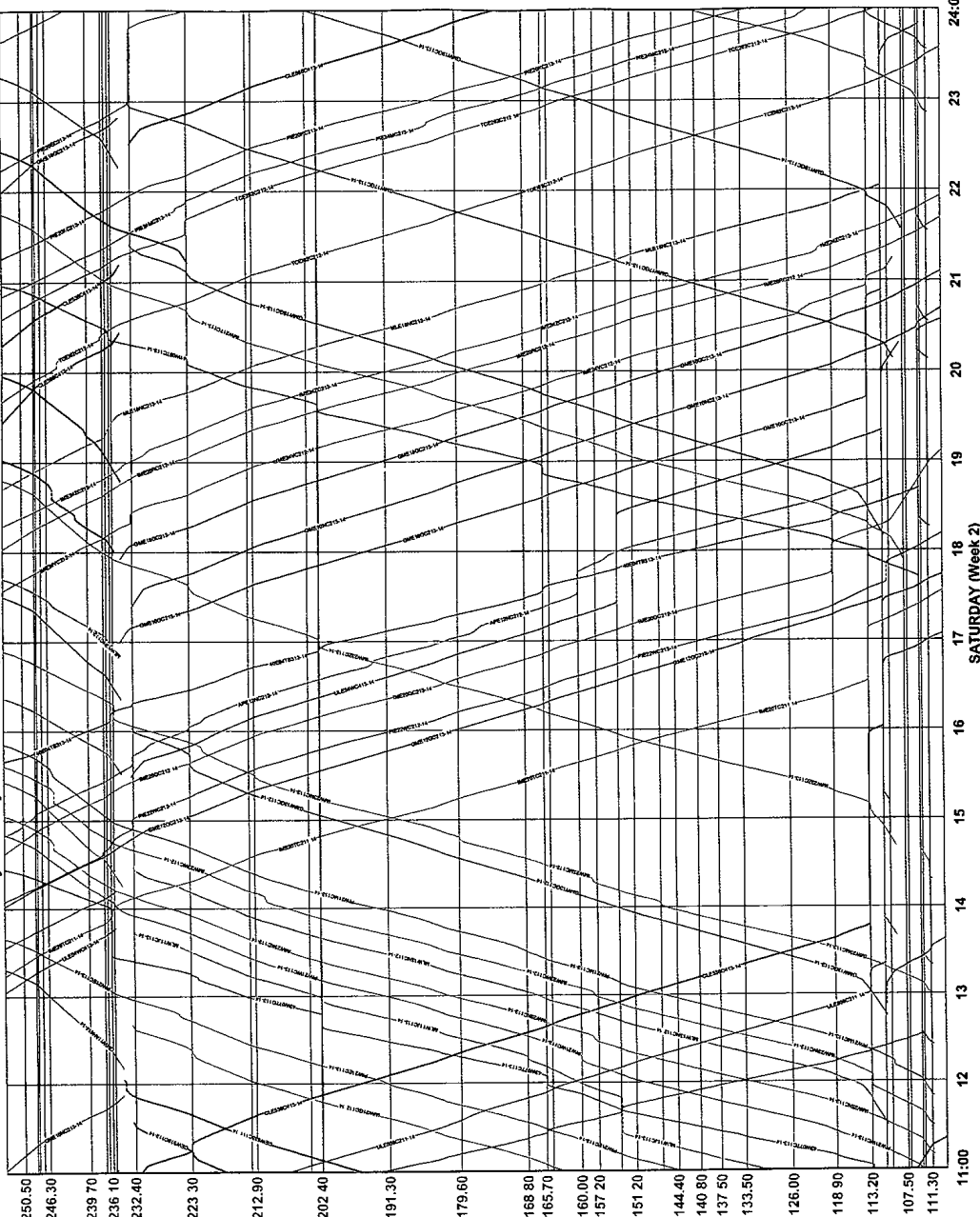


11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

SATURDAY (Week 2)

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 15:17:36

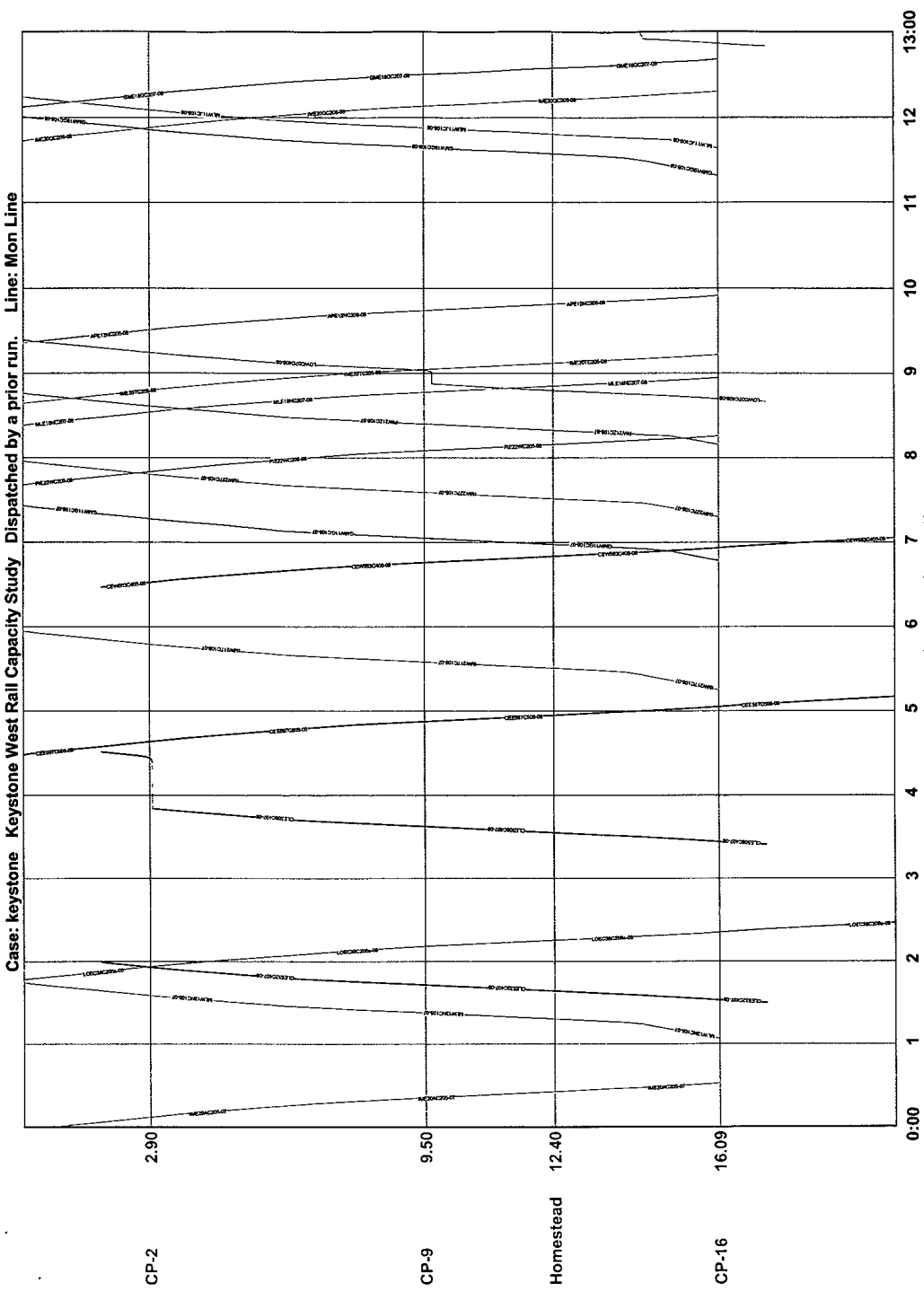
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



CP-MO	250.50
Benny	246.30
McGarveys	239.70
Altoona	236.10
CP-Antis	232.40
CP-Gray	223.30
CP-Tunnel	212.90
CP-Hunt	202.40
CP-Jacks	191.30
CP-McVey	179.60
CP-Long	168.80
CP-Lewis	165.70
CP-Hawstone Wall	160.00
Port Royal	157.20
CP-Thompson	151.20
Dunward Curve	144.40
Millerstown	140.80
CP-Port	137.50
Iroquois	133.50
CP-Cannon	126.00
CP-Banks	118.90
H'burg Fuel Sta	113.20
CP-Capitol	107.50
	111.30

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 15:17:48

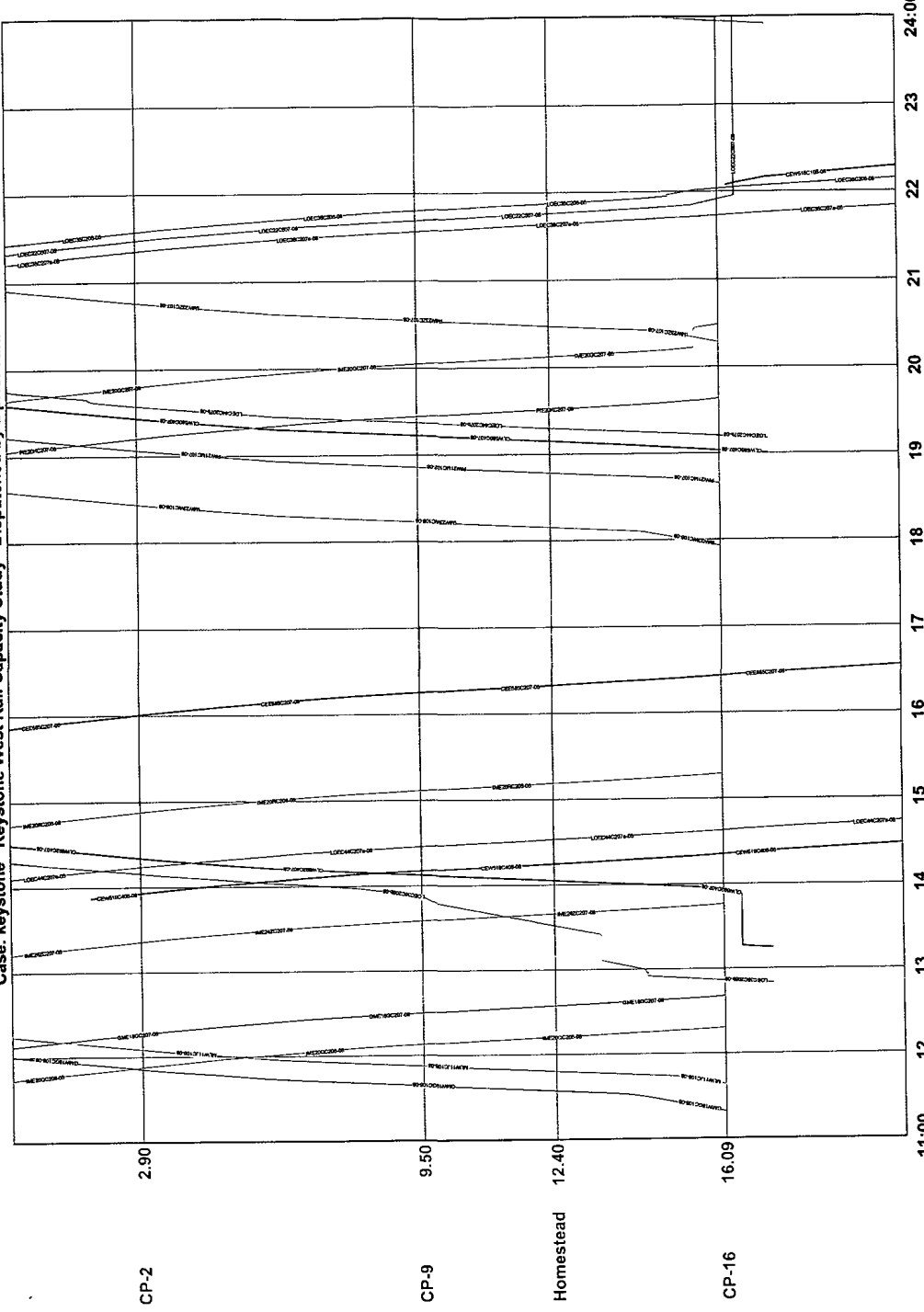
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



SUNDAY (Week 2) Run time: 11 January 2005 14:30:42
RTC version: 2.60 L32E

All times displayed in Eastern time

Case: keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



CP-2

CP-9

Homestead

CP-16

2.90

9.50

12.40

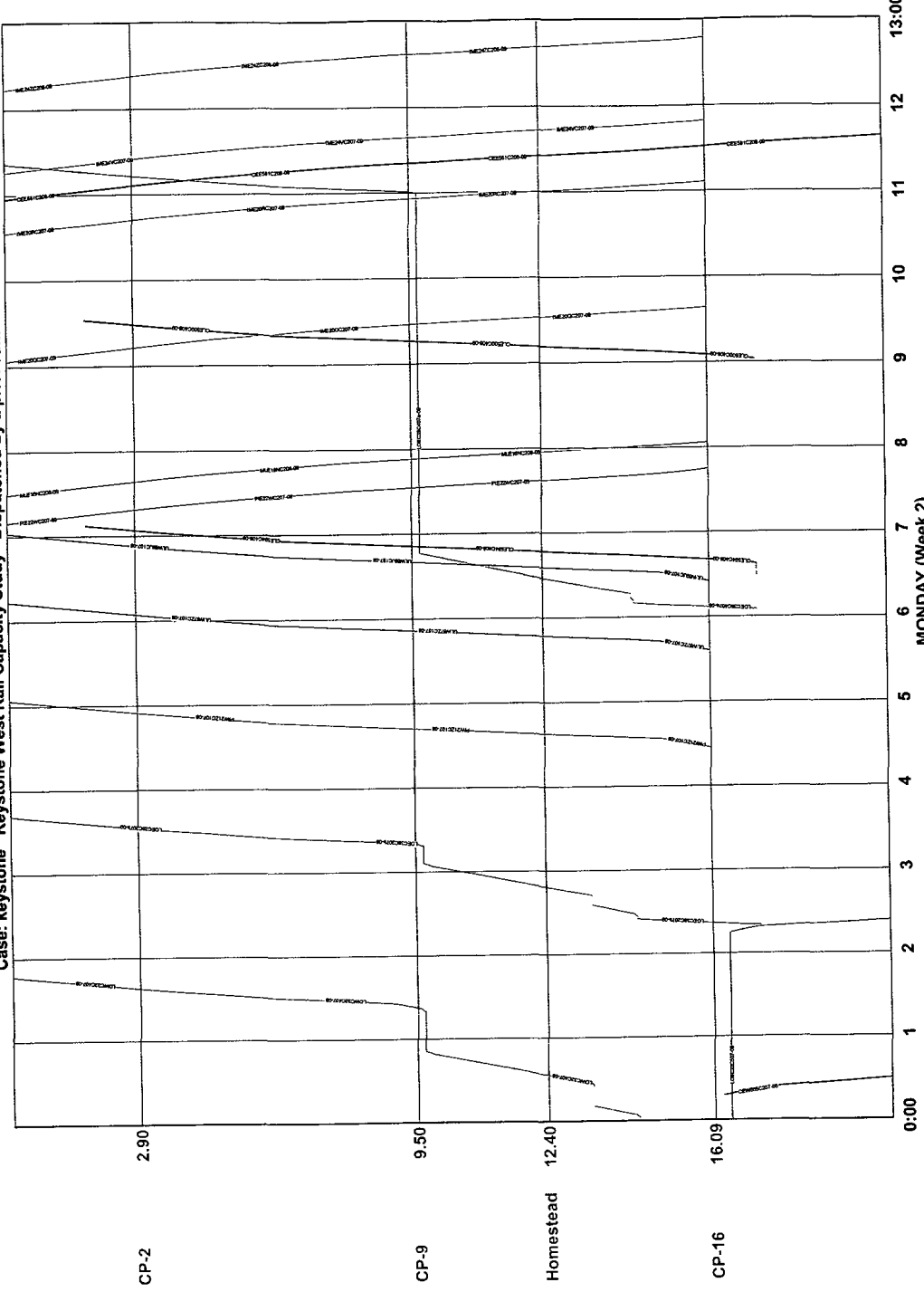
16.09

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

SUNDAY (Week 2)

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:30:49

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



CP-2

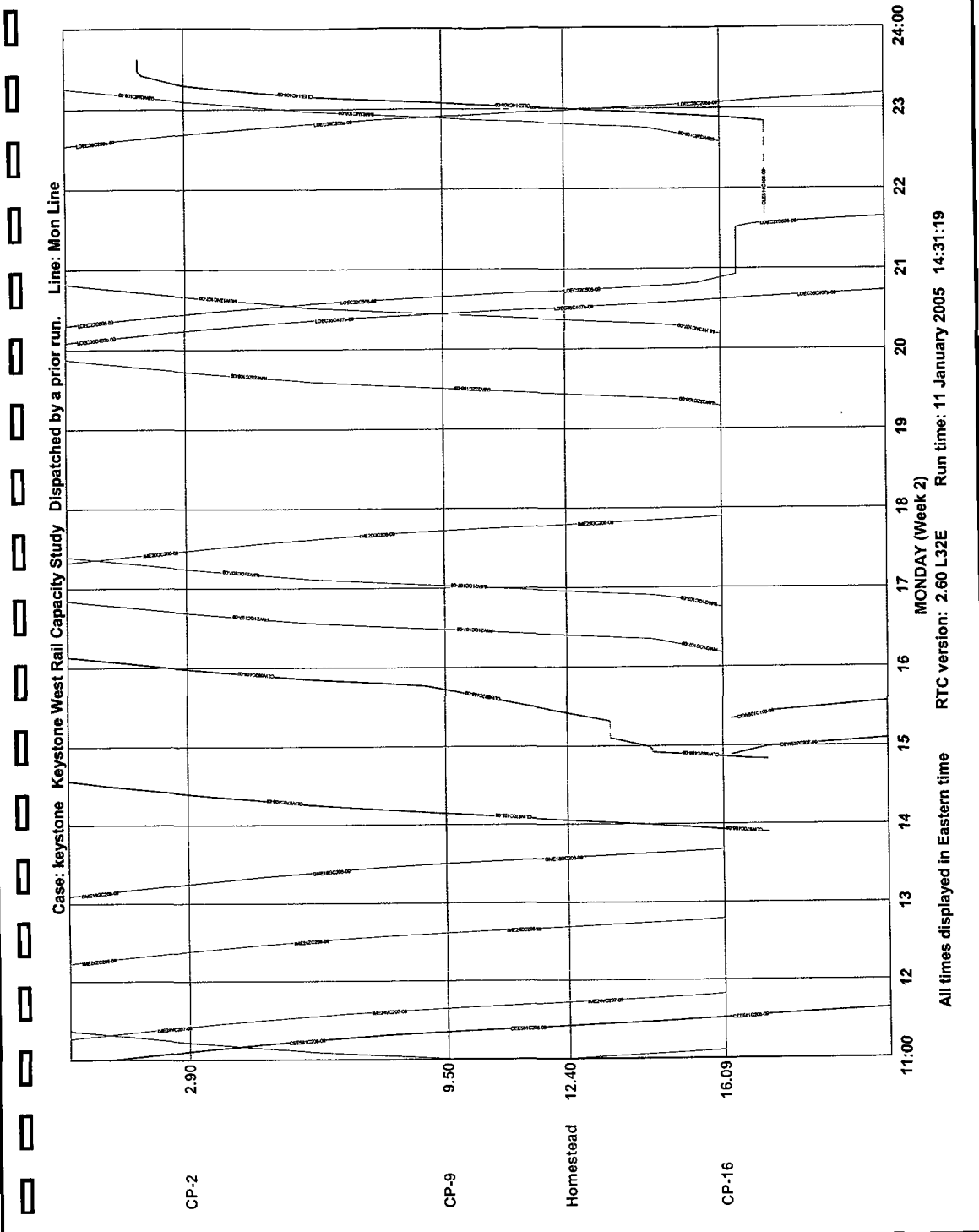
CP-9

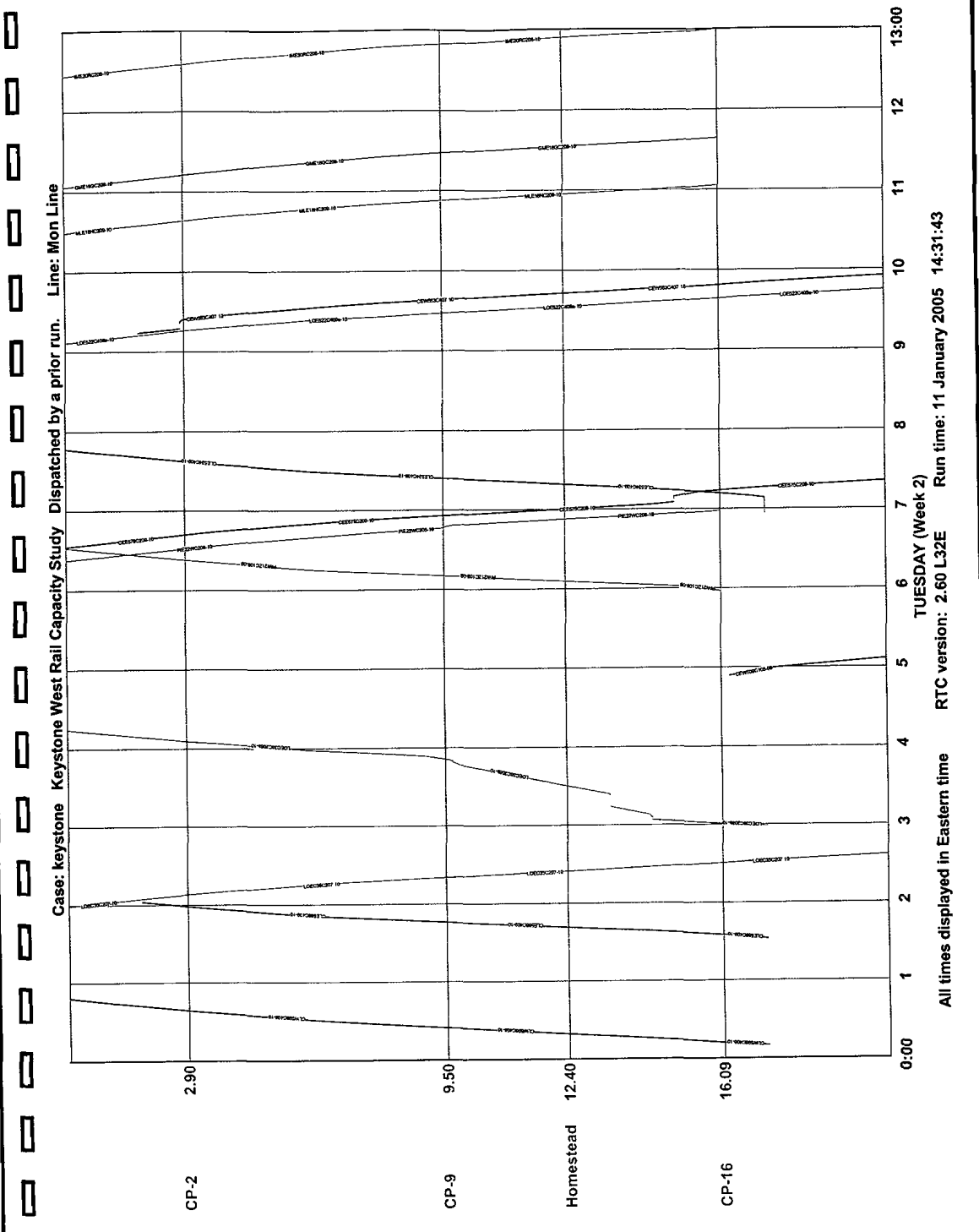
Homestead

CP-16

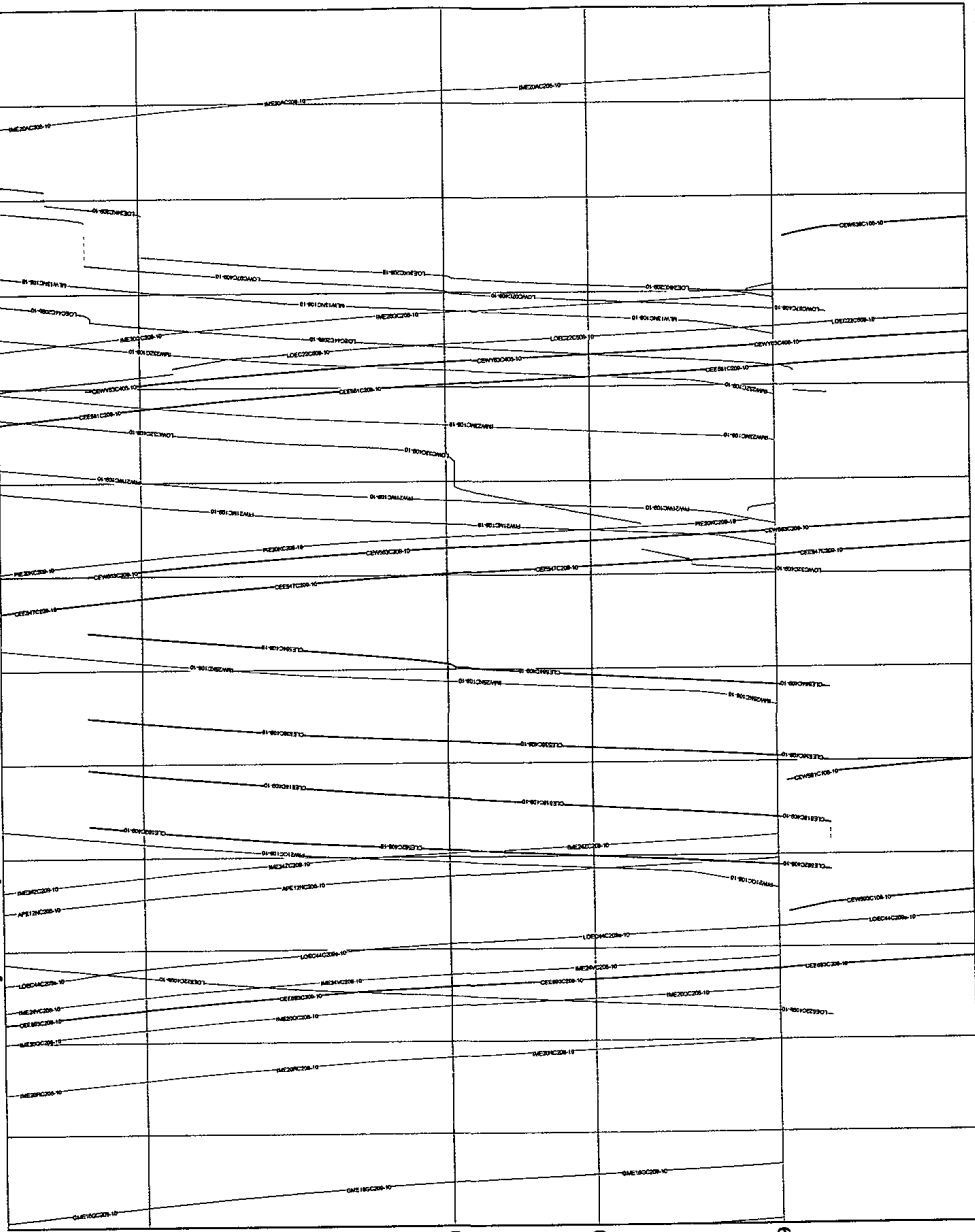
0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

MONDAY (Week 2)
Run time: 2.60 L32E
RTC version: 11 January 2005 14:31:13





Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



CP-2

CP-9

Homestead

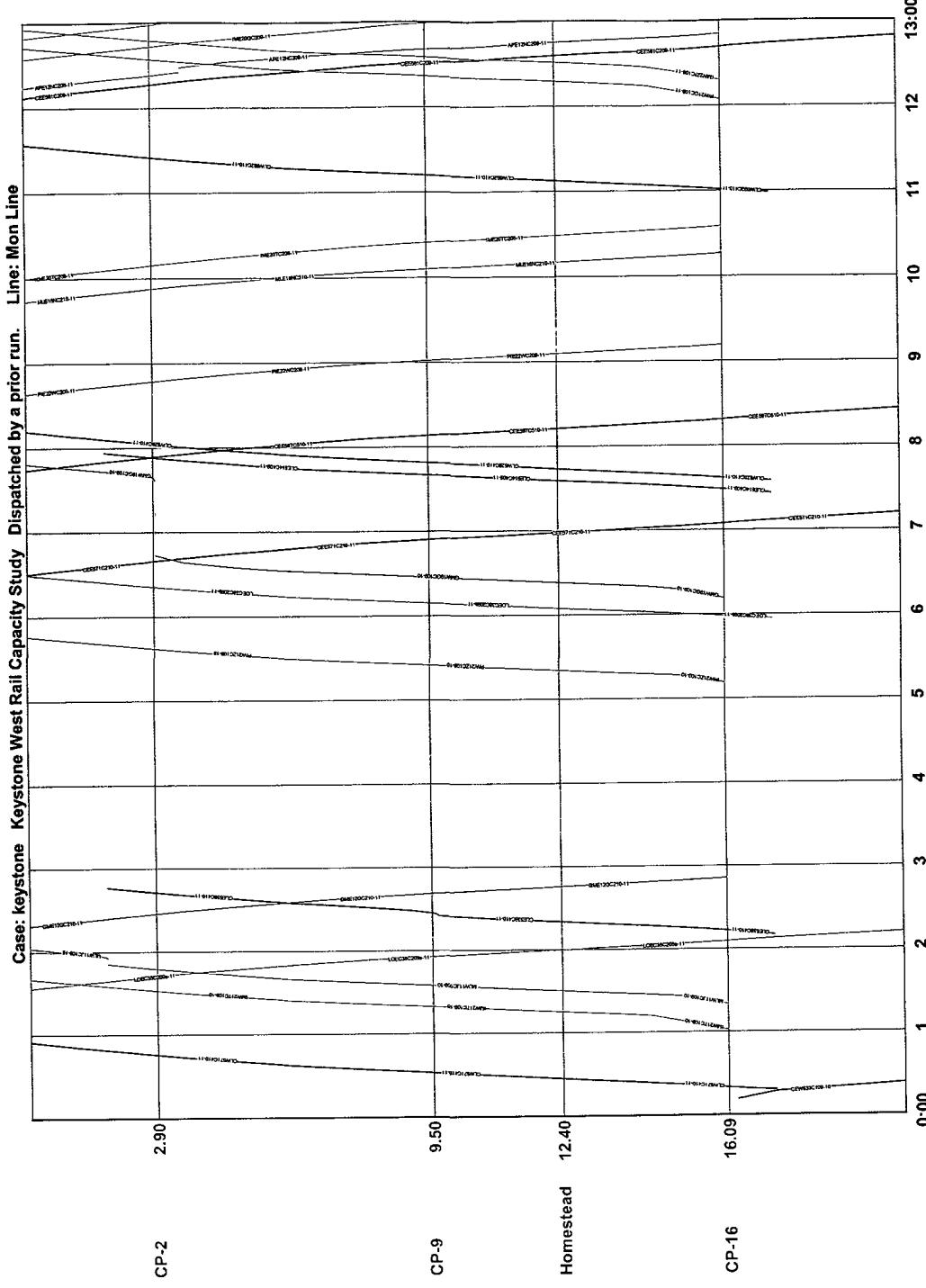
CP-16

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

TUESDAY (Week 2)

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:31:50

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

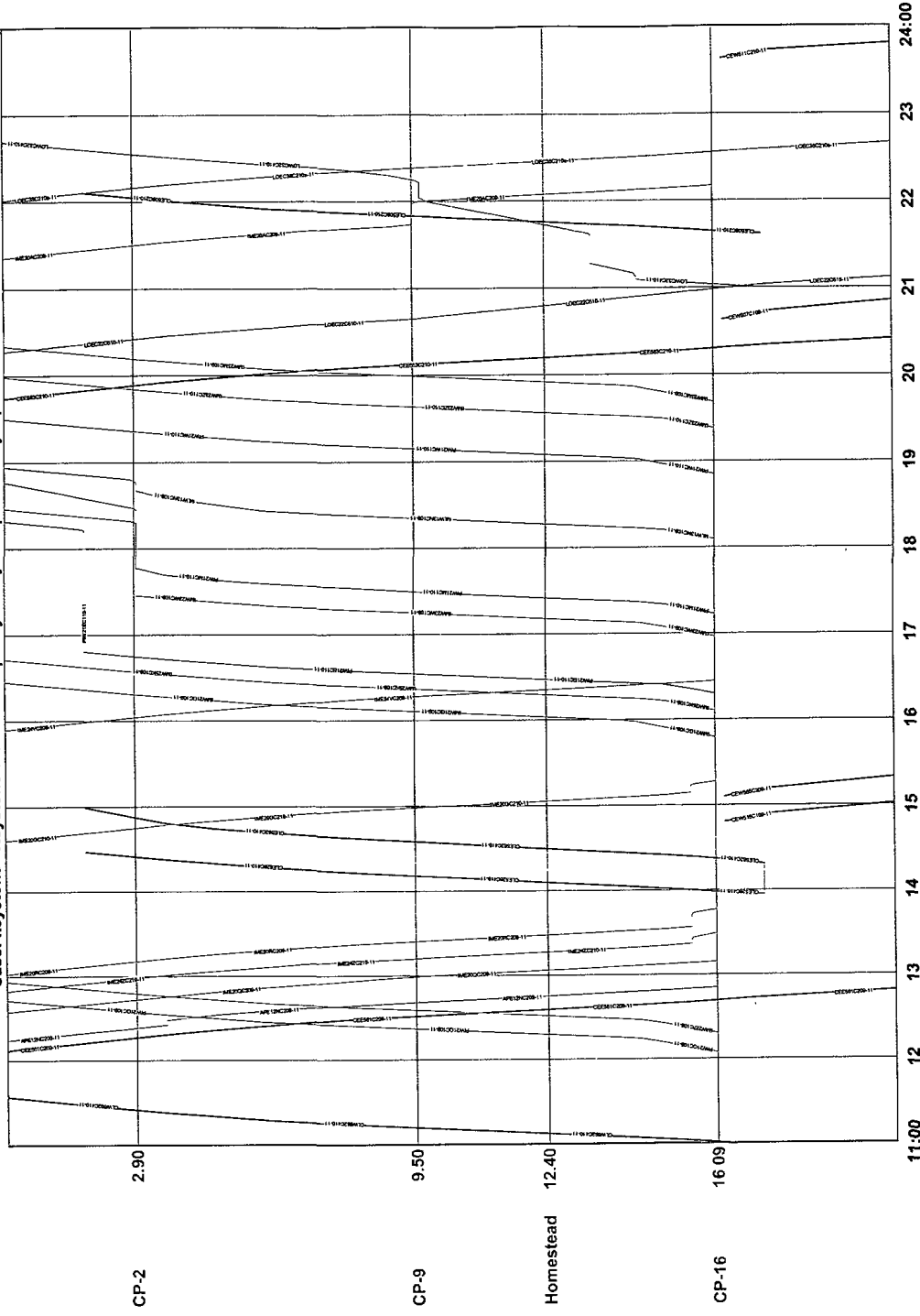
All times displayed in Eastern time

WEDNESDAY (Week 2)

RTC version: 2.60 L32E

Run time: 11 January 2005 14:32:15

Case: keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



CP-2

CP-9

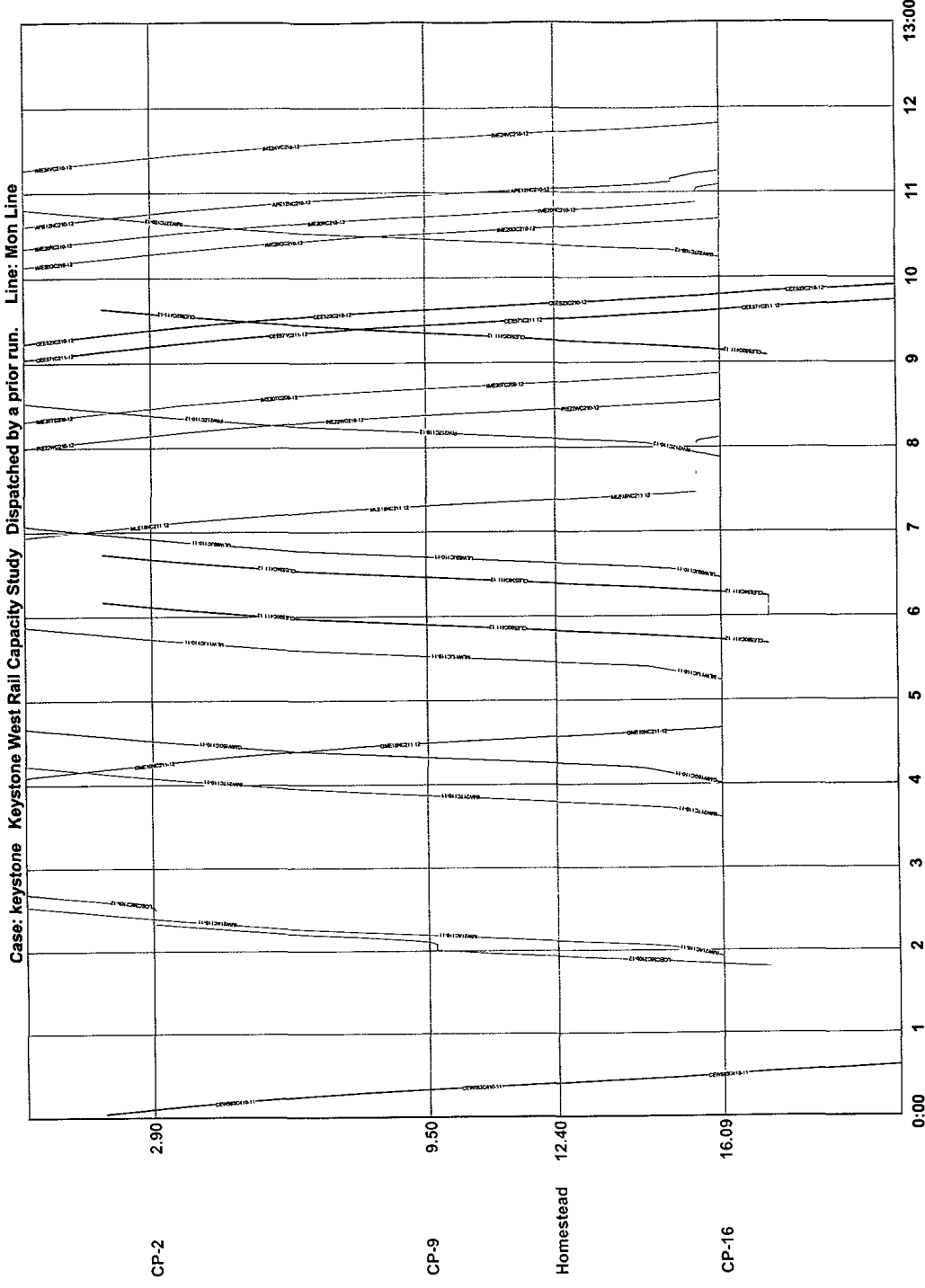
Homestead

CP-16

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

WEDNESDAY (Week 2)
Run time: 11 January 2005 14:32:21
RTC version: 2.60 L32E
All times displayed in Eastern time

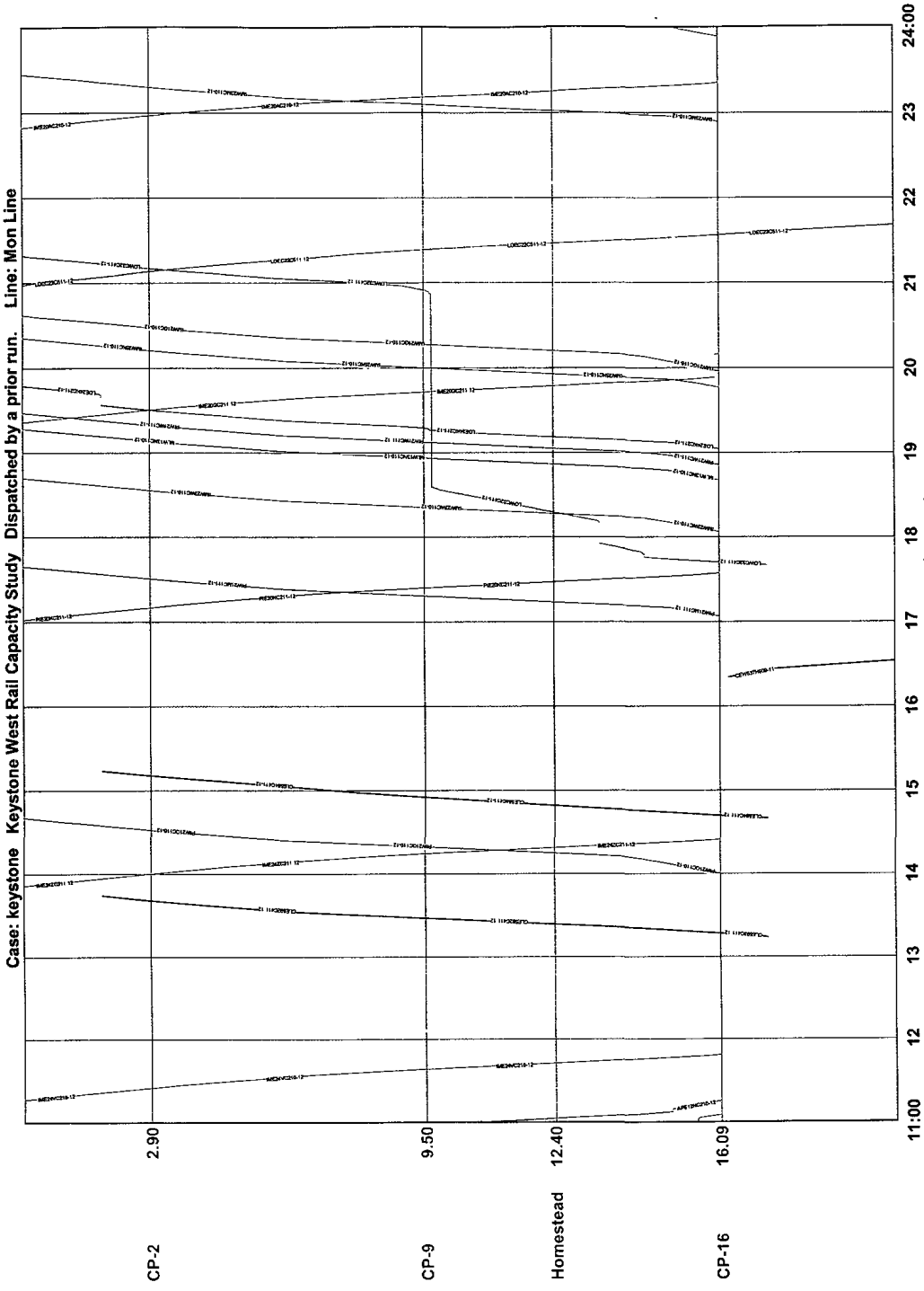
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00
THURSDAY (Week 2)
Run time: 2.60 L32E
RTC version: 11 January 2005 14:32:47

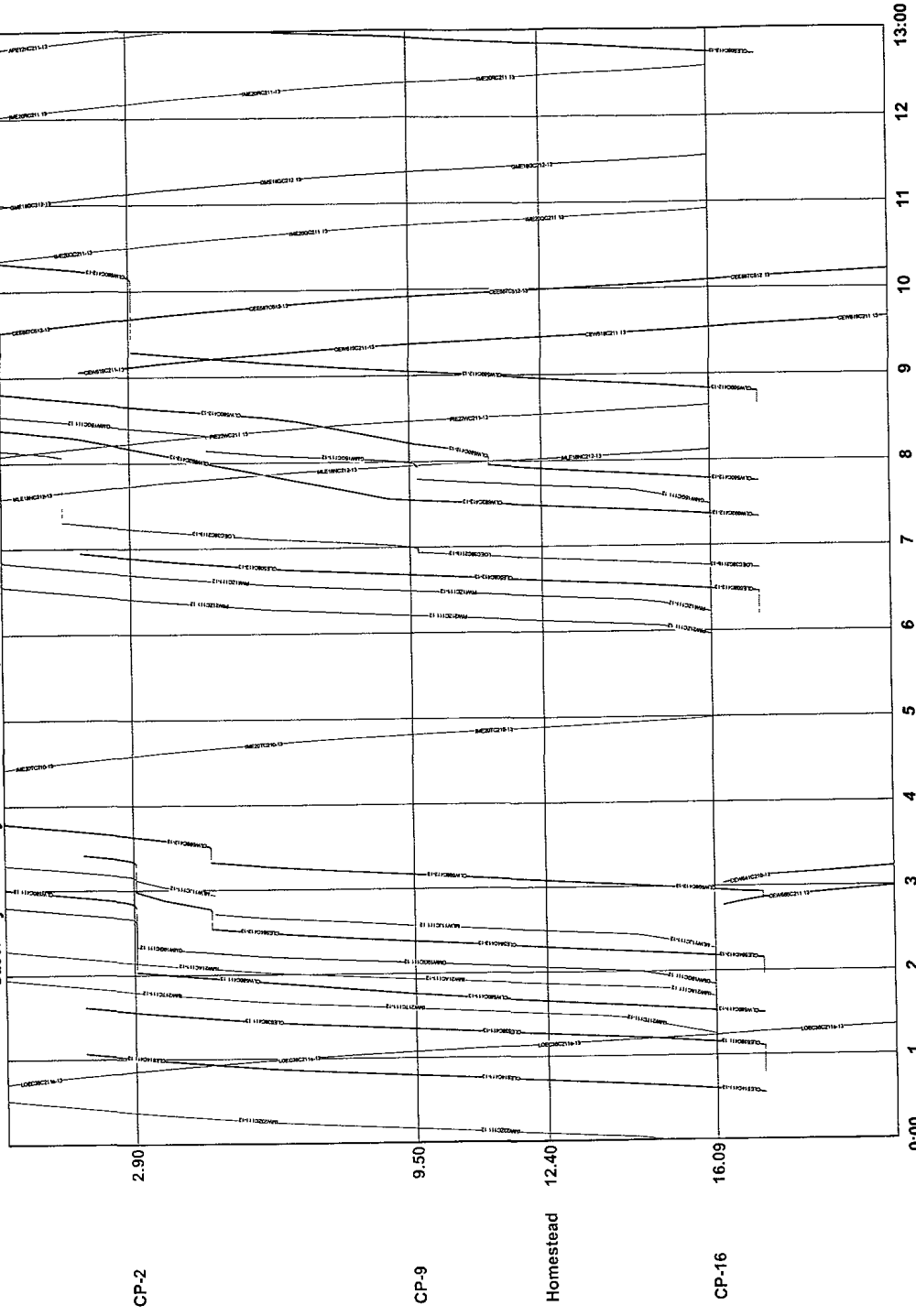
All times displayed in Eastern time

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



THURSDAY (Week 2) Run time: 11 January 2005 14:32:54
RTC version: 2.60 L32E
All times displayed in Eastern time

Case: keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



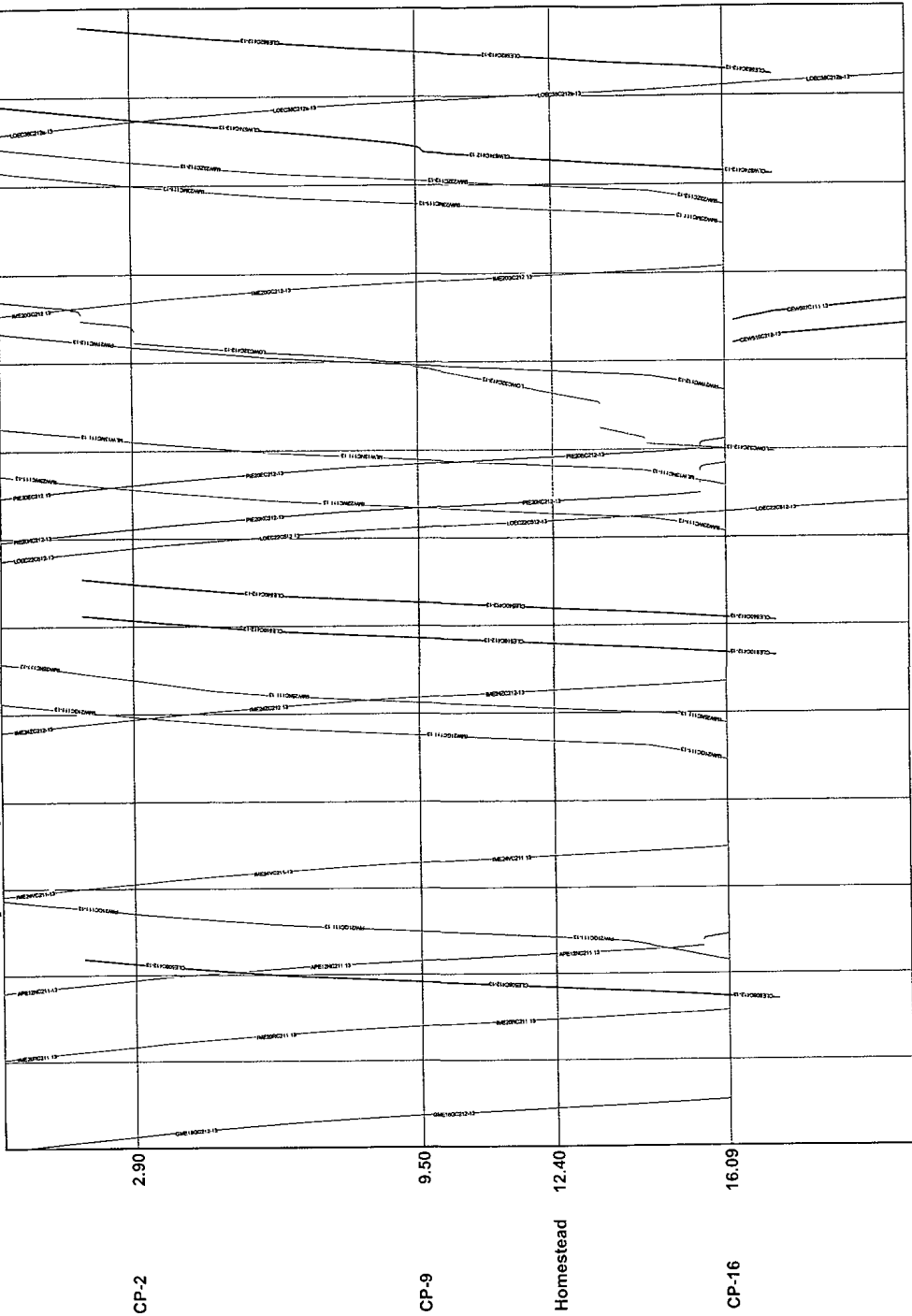
0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

FRIDAY (Week 2) Run time: 11 January 2005 15:20:24

RTC version: 2.60 L32E

All times displayed in Eastern time

Case: keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



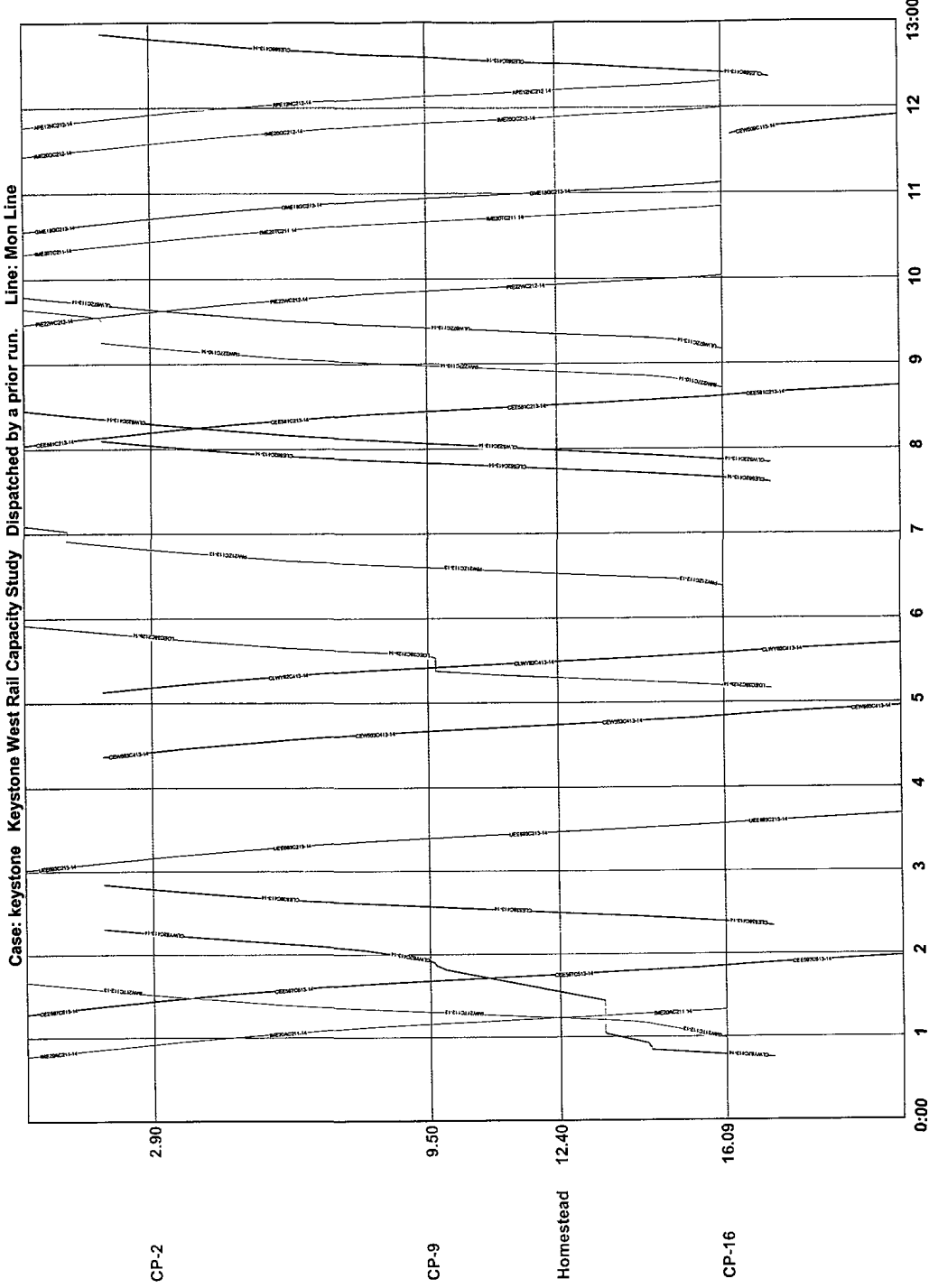
11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

FRIDAY (Week 2) Run time: 11 January 2005 15:20:31

RTC version: 2.60 L32E

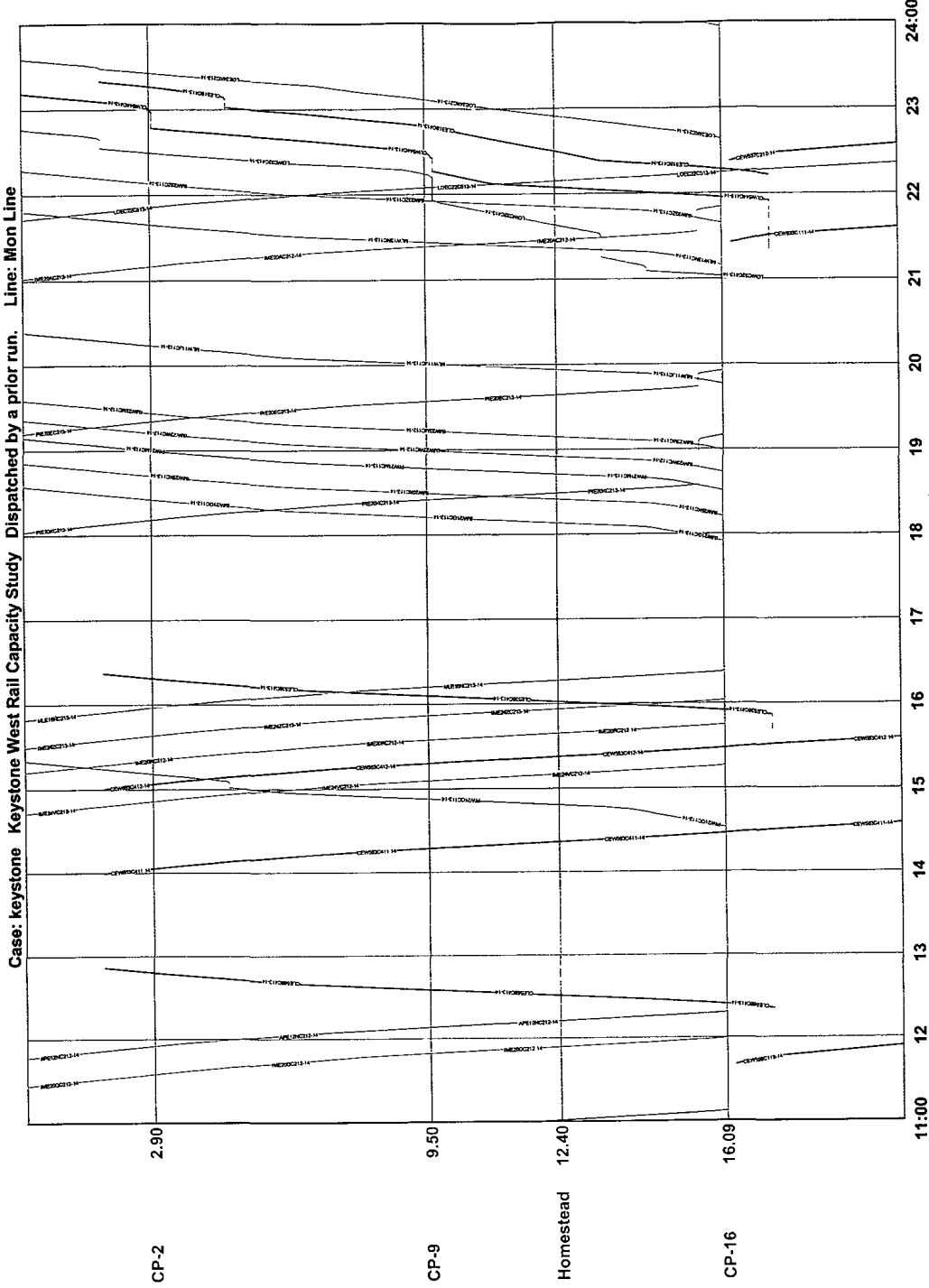
All times displayed in Eastern time

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 15:20:57

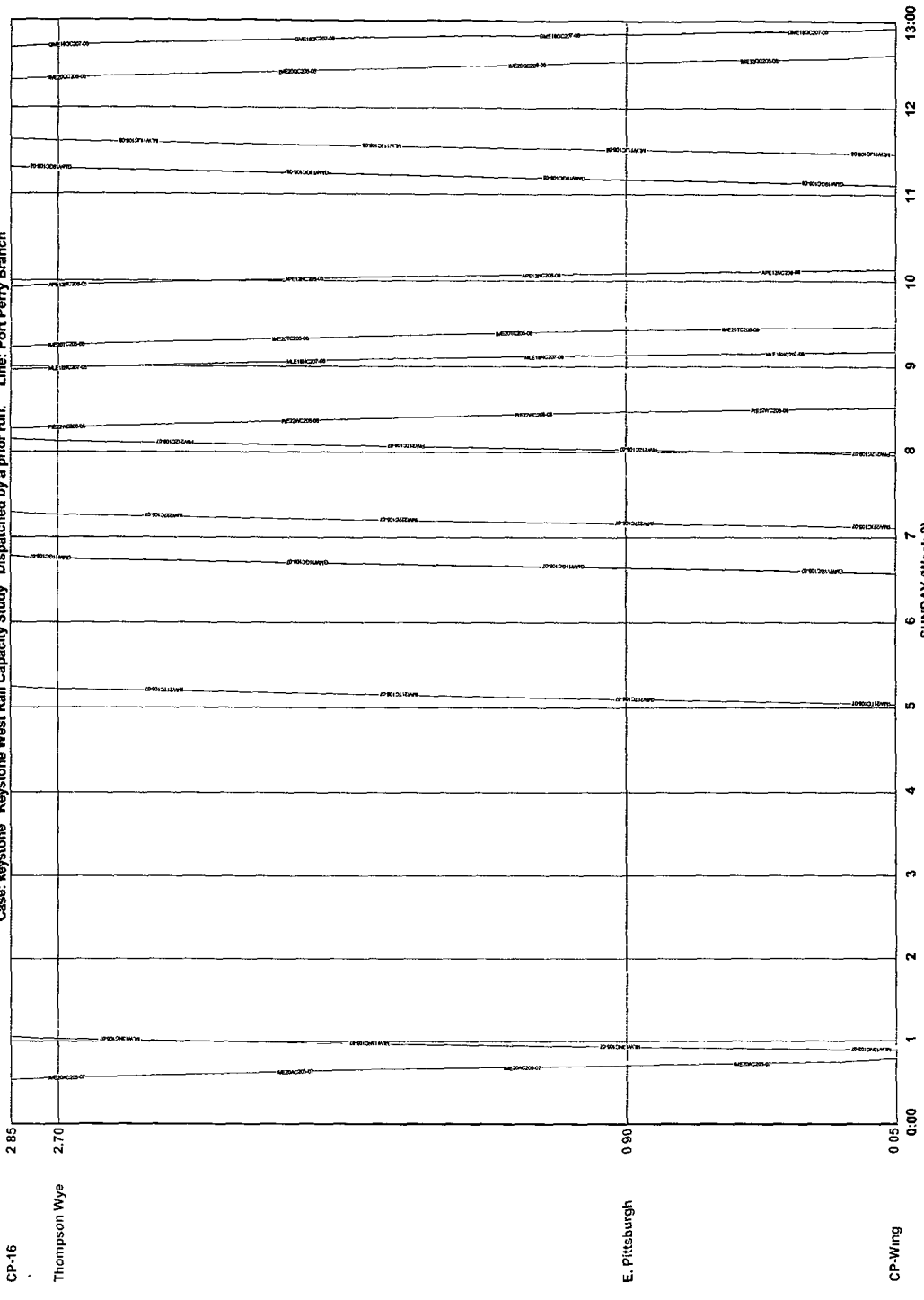
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Mon Line



SATURDAY (Week 2) Run time: 11 January 2005 15:21:05
RTC version: 2.60 L32E
All times displayed in Eastern time

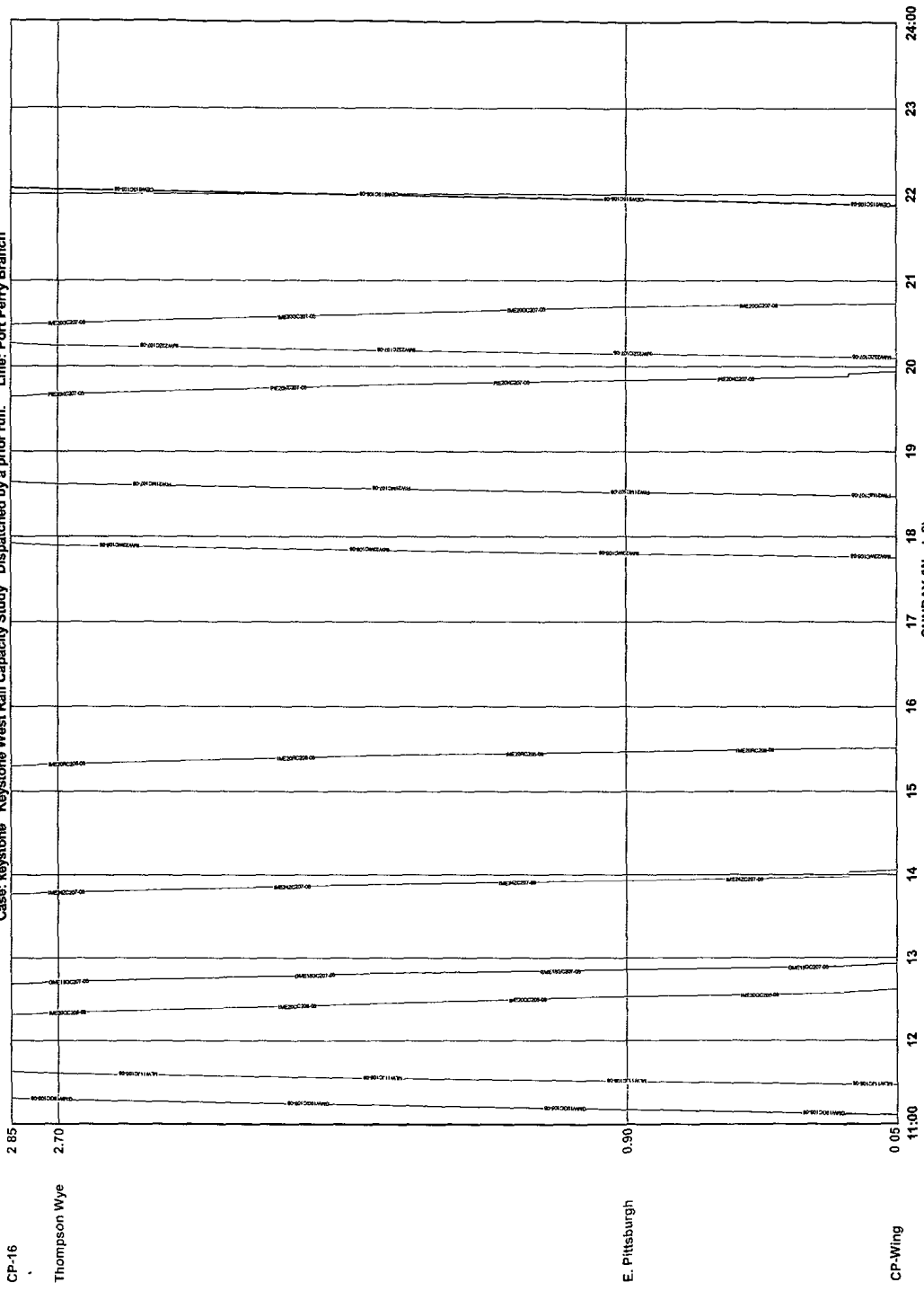
CP-16
Thompson Wye
E. Pittsburgh
CP-Wing

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



All times displayed in Eastern time
SUNDAY (Week 2)
RTC version: 2.60 L32E
Run time: 11 January 2005 14:33:41

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



2.85

2.70

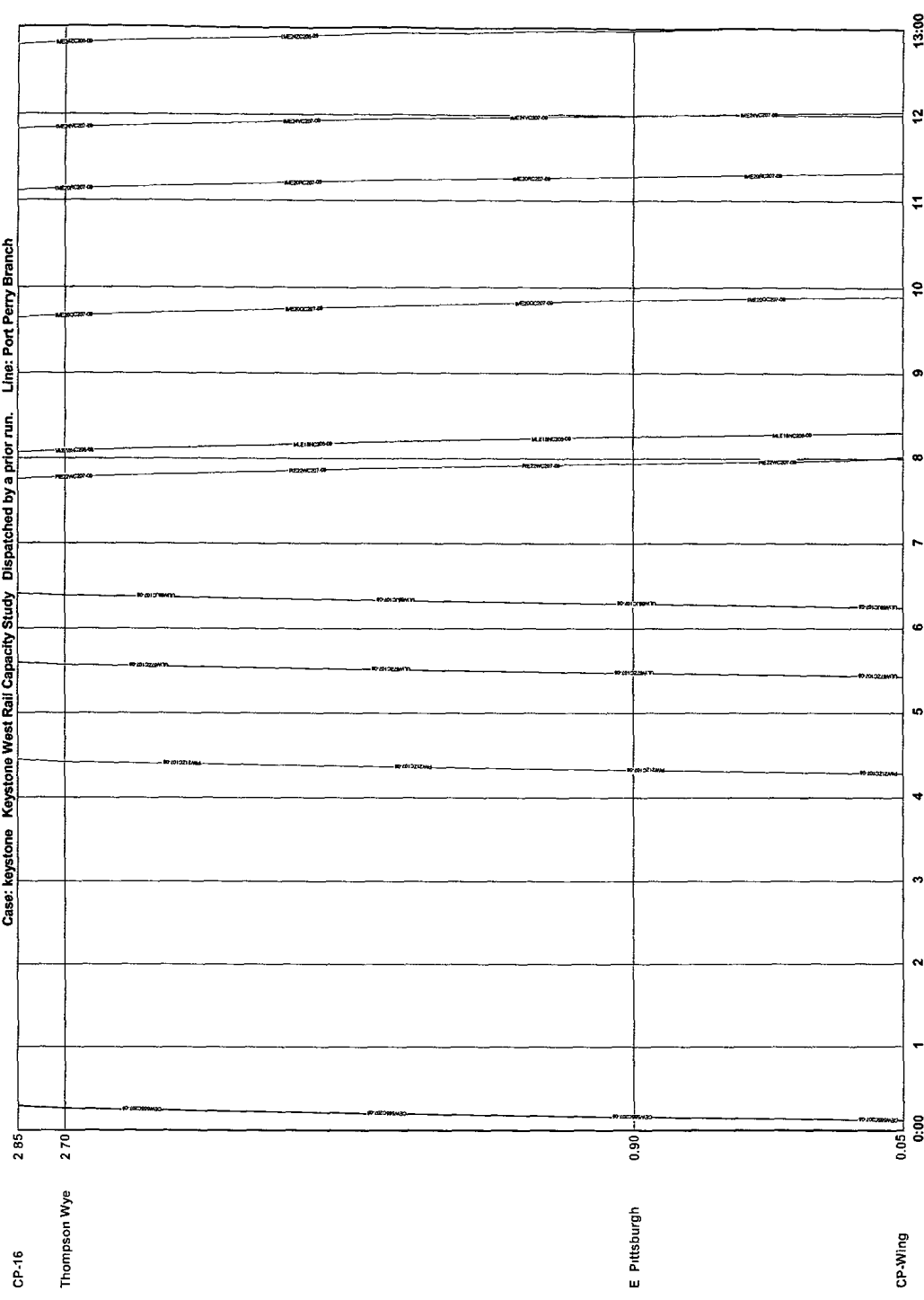
0.90

0.05

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

SUNDAY (Week 2)
 Run time: 11 January 2005 14:33:48
 RTC version: 2.80 L32E
 All times displayed in Eastern time

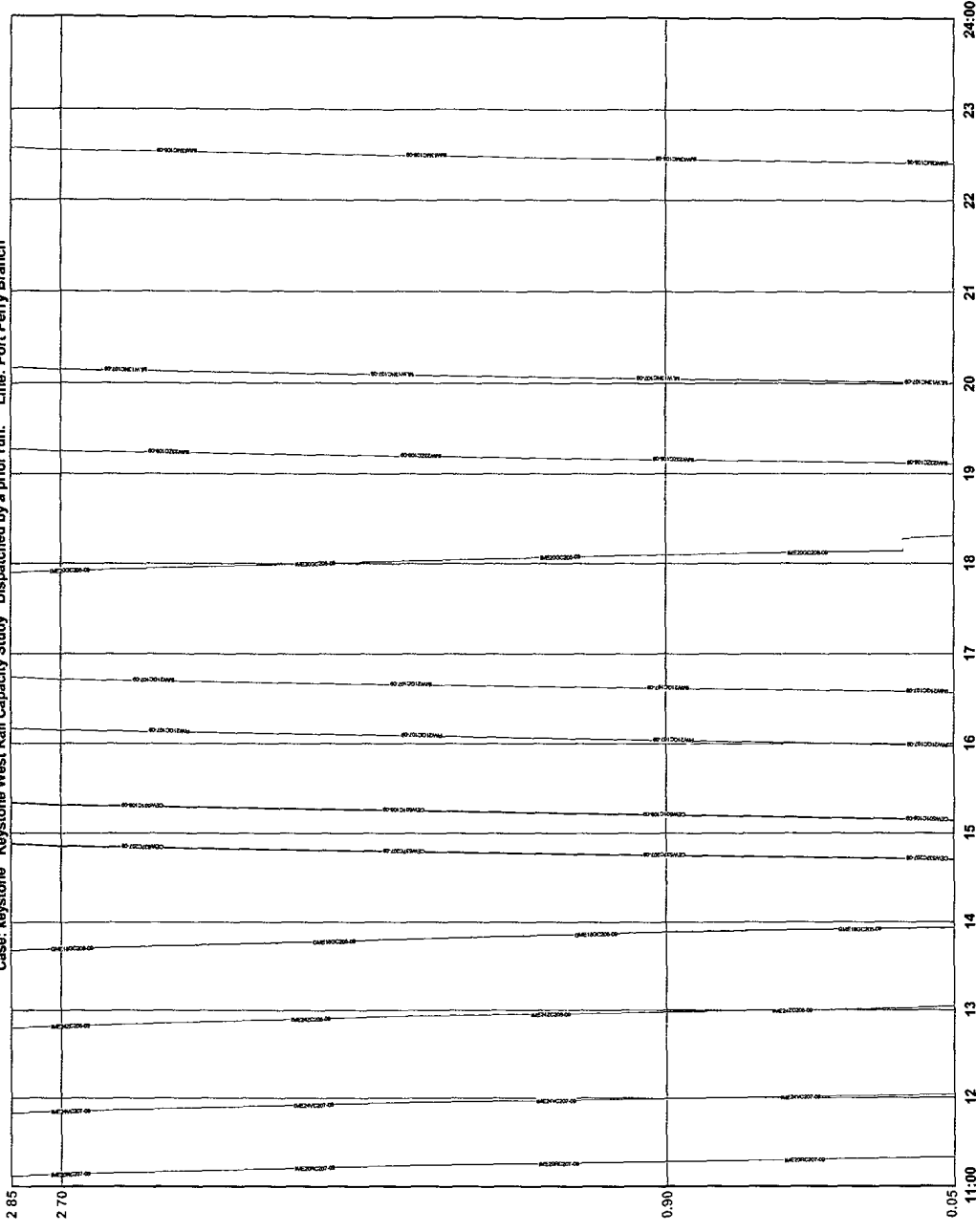
Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



MONDAY (Week 2)
Run time: 11 January 2005 14:34:11
RTC version: 2.60 L32E
All times displayed in Eastern time



Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



CP-16

Thompson Wye

E. Pittsburgh

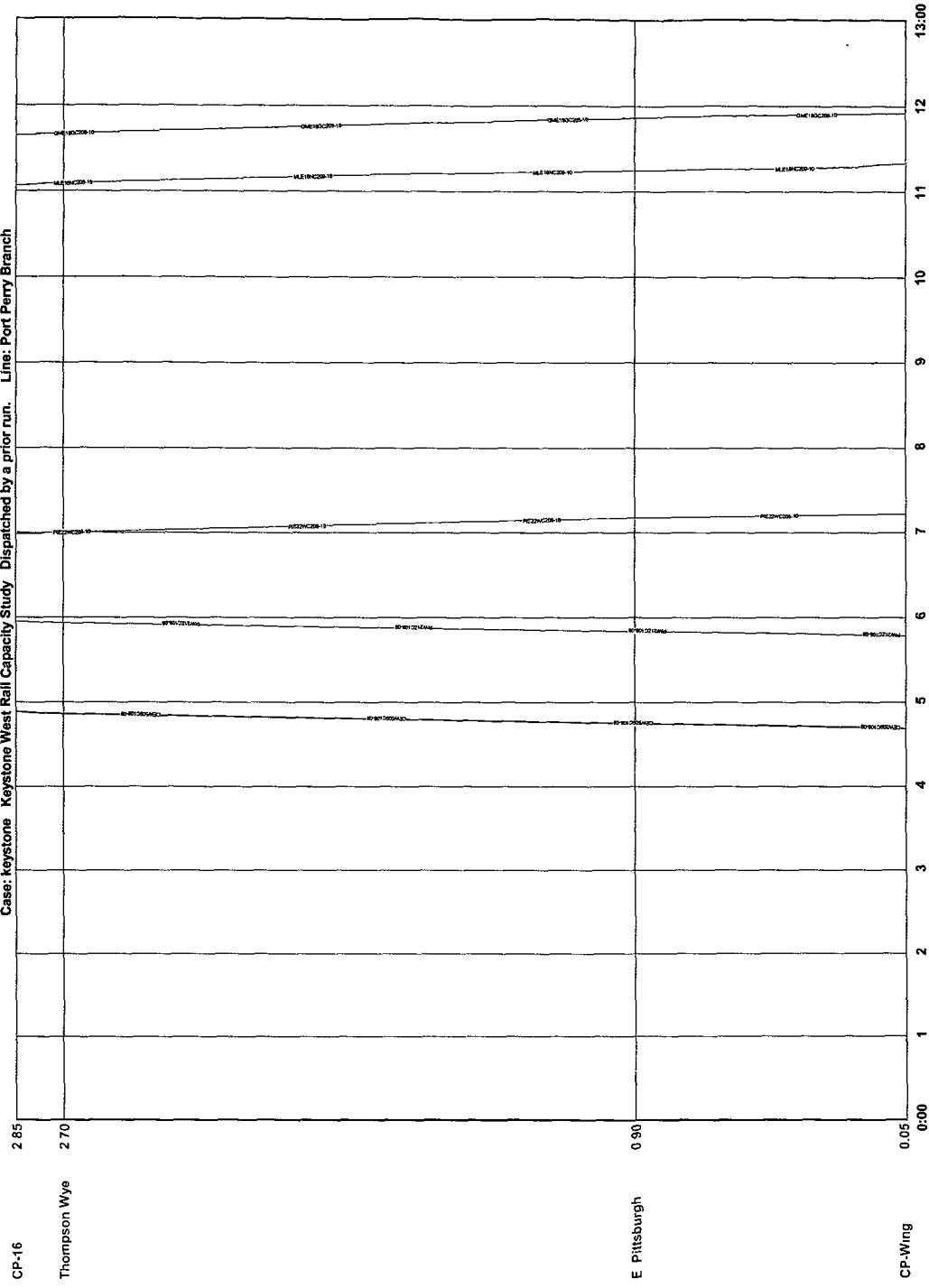
CP-Wing

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

MONDAY (Week 2)
RTC version: 2.60 L32E Run time: 11 January 2005 14:34:17

All times displayed in Eastern time

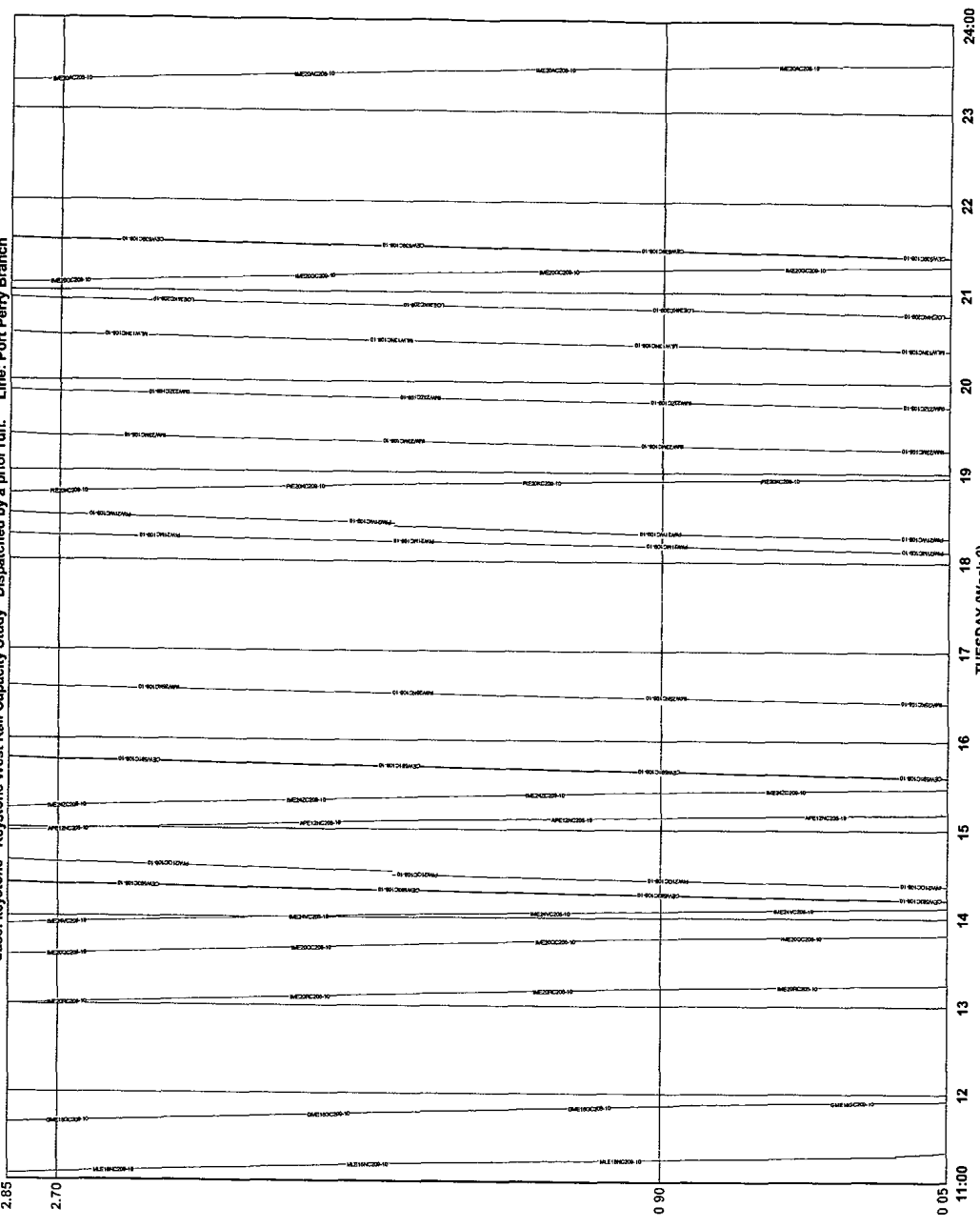
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



TUESDAY (Week 2) Run time: 11 January 2005 14:34:41
 RTC version: 2.60 L32E

All times displayed in Eastern time

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



2.85

Thompson Wye 2.70

E Pittsburgh 0.90

CP-Wing 0.05

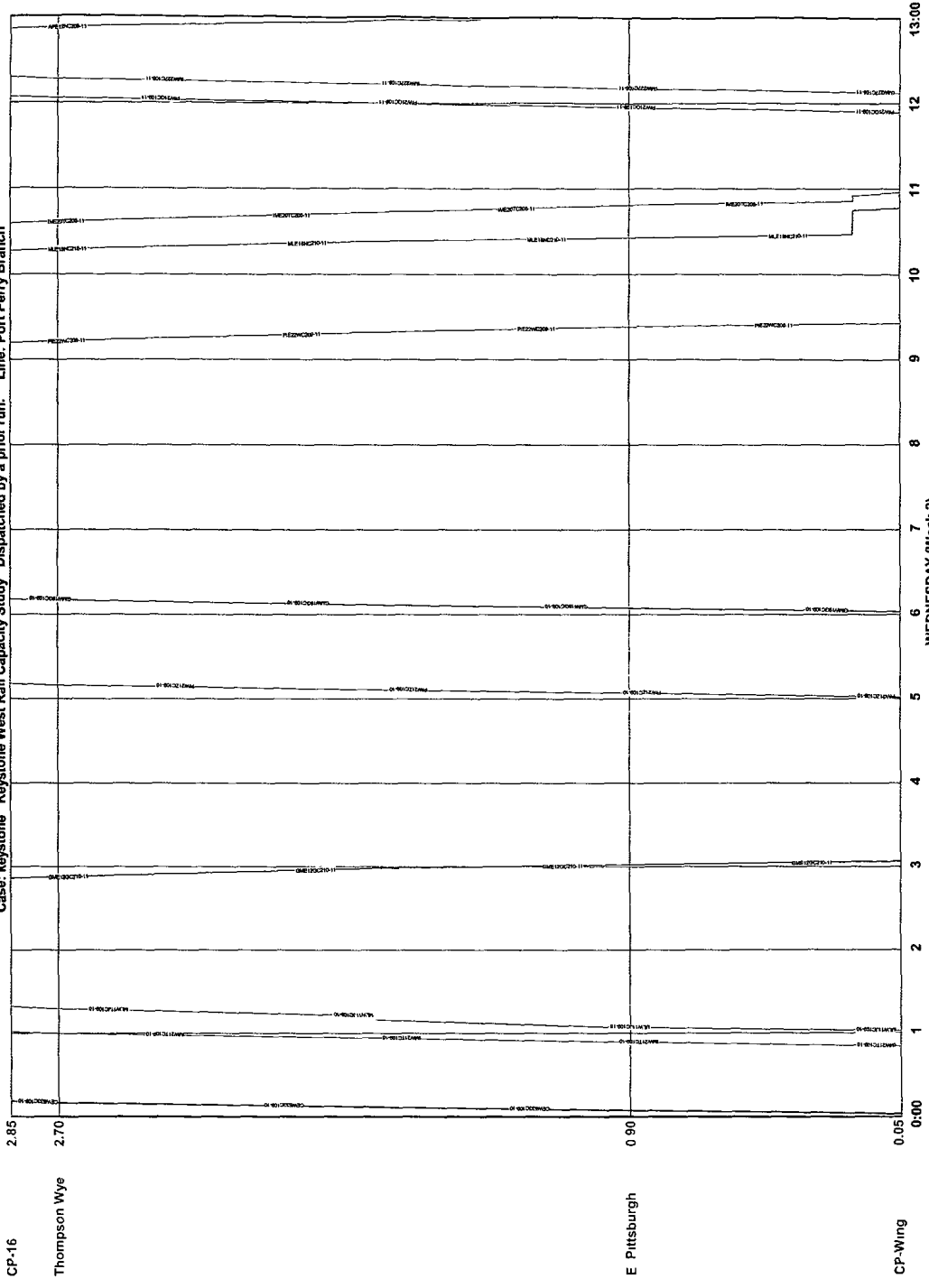
11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

TUESDAY (Week 2)

All times displayed in Eastern time RTC version: 2 60 L32E Run time: 11 January 2005 14:34:47



Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



CP-16

Thompson Wye

E Pittsburgh

CP-Wing

2.85

2.70

0.90

0.05

13:00

12

11

10

9

8

7

6

5

4

3

2

1

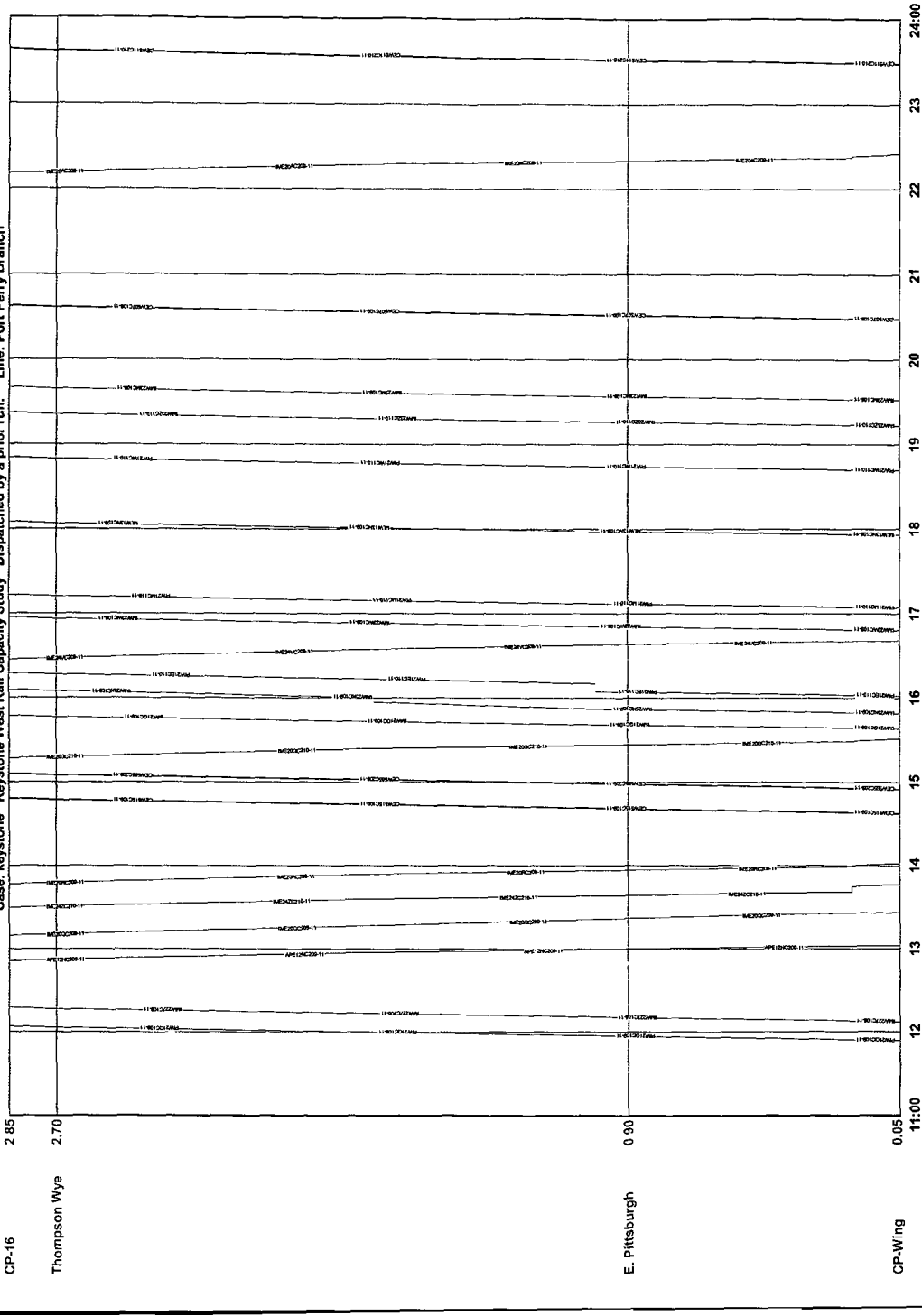
0:00

WEDNESDAY (Week 2)

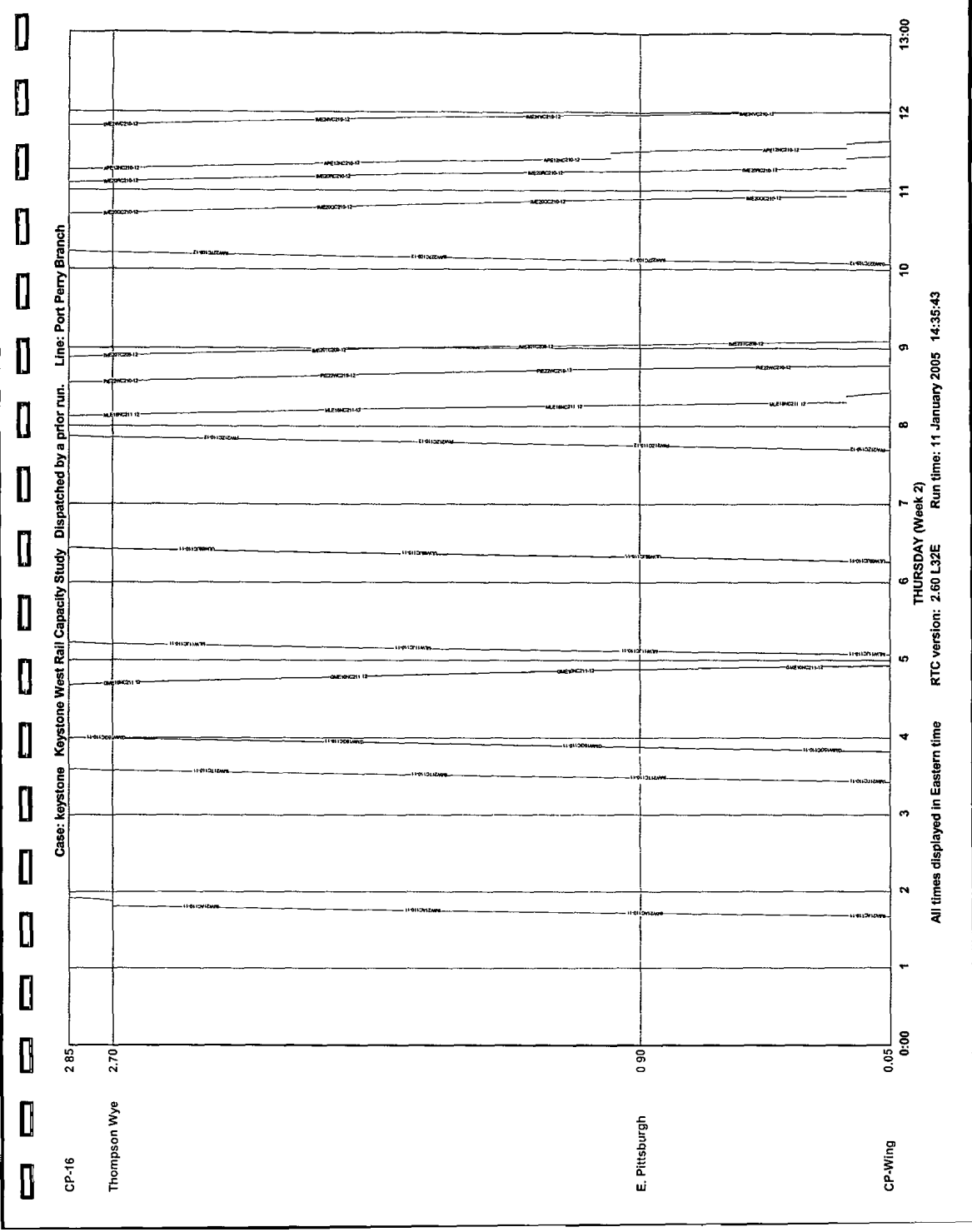
RTC version: 2.60 L32E Run time: 11 January 2005 14:35:11

All times displayed in Eastern time

Case: Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



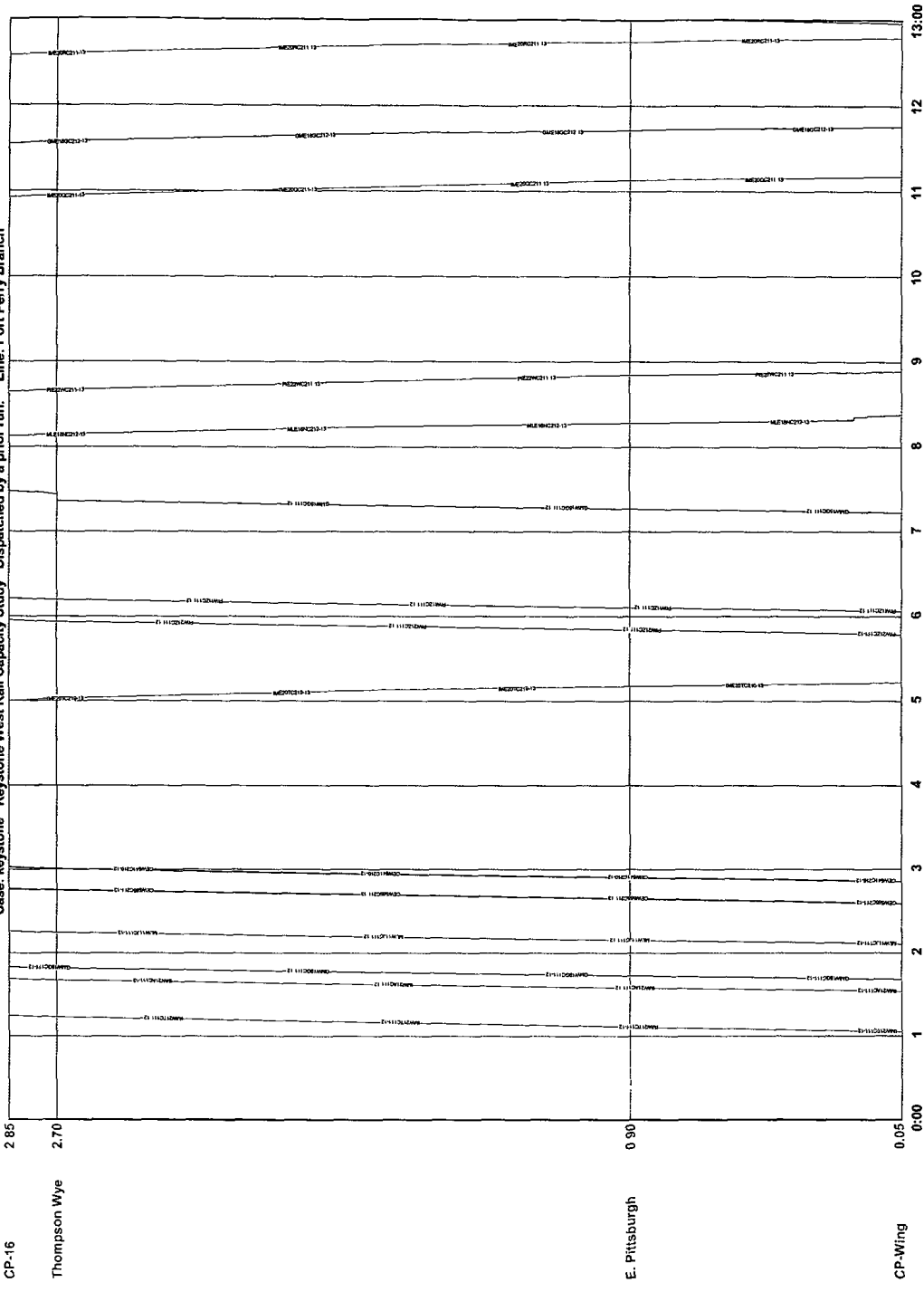
WEDNESDAY (Week 2) Run time: 11 January 2005 14:35:18
RTC version: 2.60 L32E
All times displayed in Eastern time



THURSDAY (Week 2) Run time: 11 January 2005 14:35:43

All times displayed in Eastern time RTC version: 2.60 L32E

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



CP-16 2.85

Thompson Wye 2.70

E. Pittsburgh 0.90

CP-Wing 0.05

13:00
12
11
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2
1
0:00

FRIDAY (Week 2)
All times displayed in Eastern time
RTC version: 2.60 L32E Run time: 11 January 2005 15:23:26

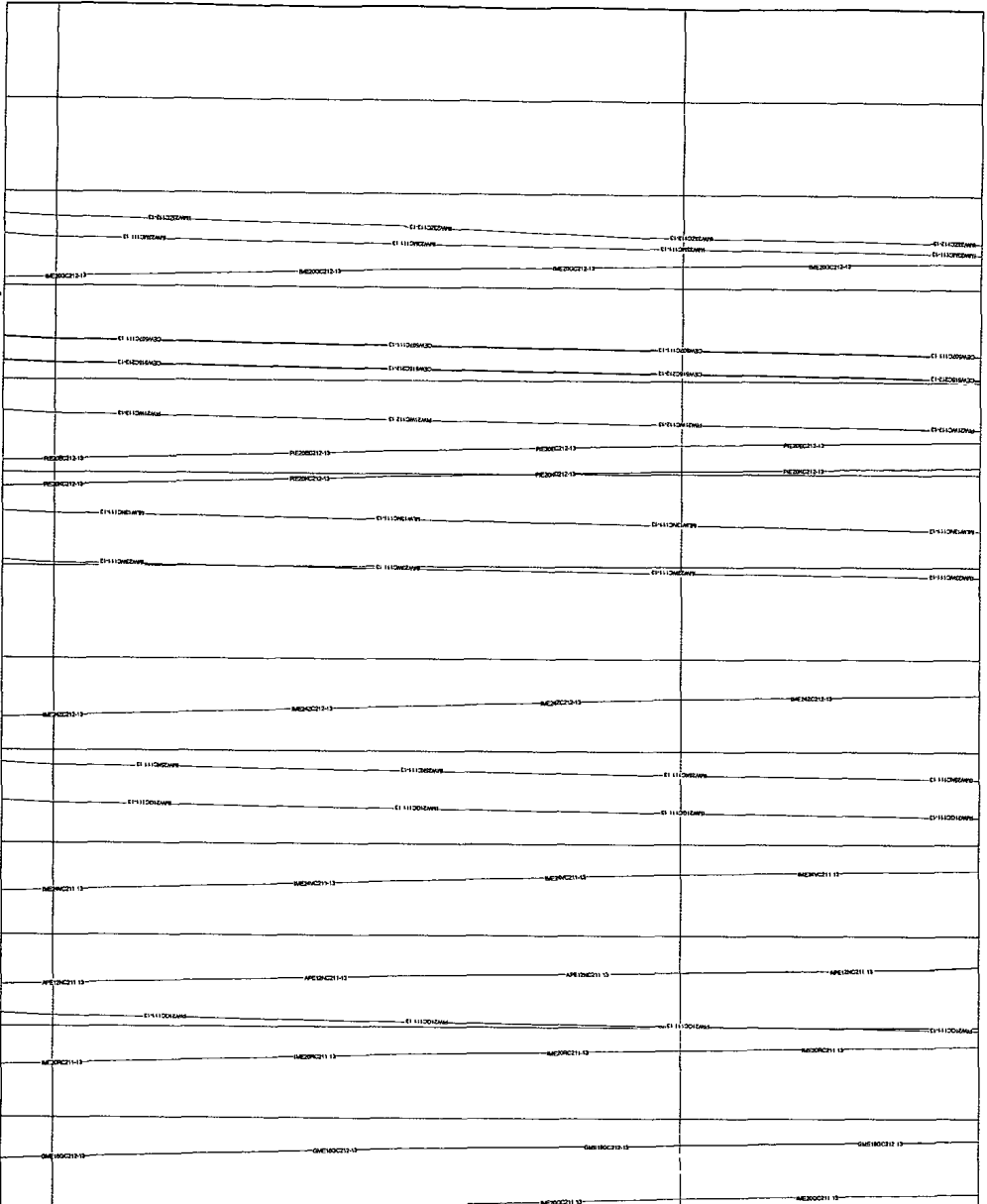
Case: Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch

CP-16 2.85

Thompson Wye 2.70

E. Pittsburgh 0.90

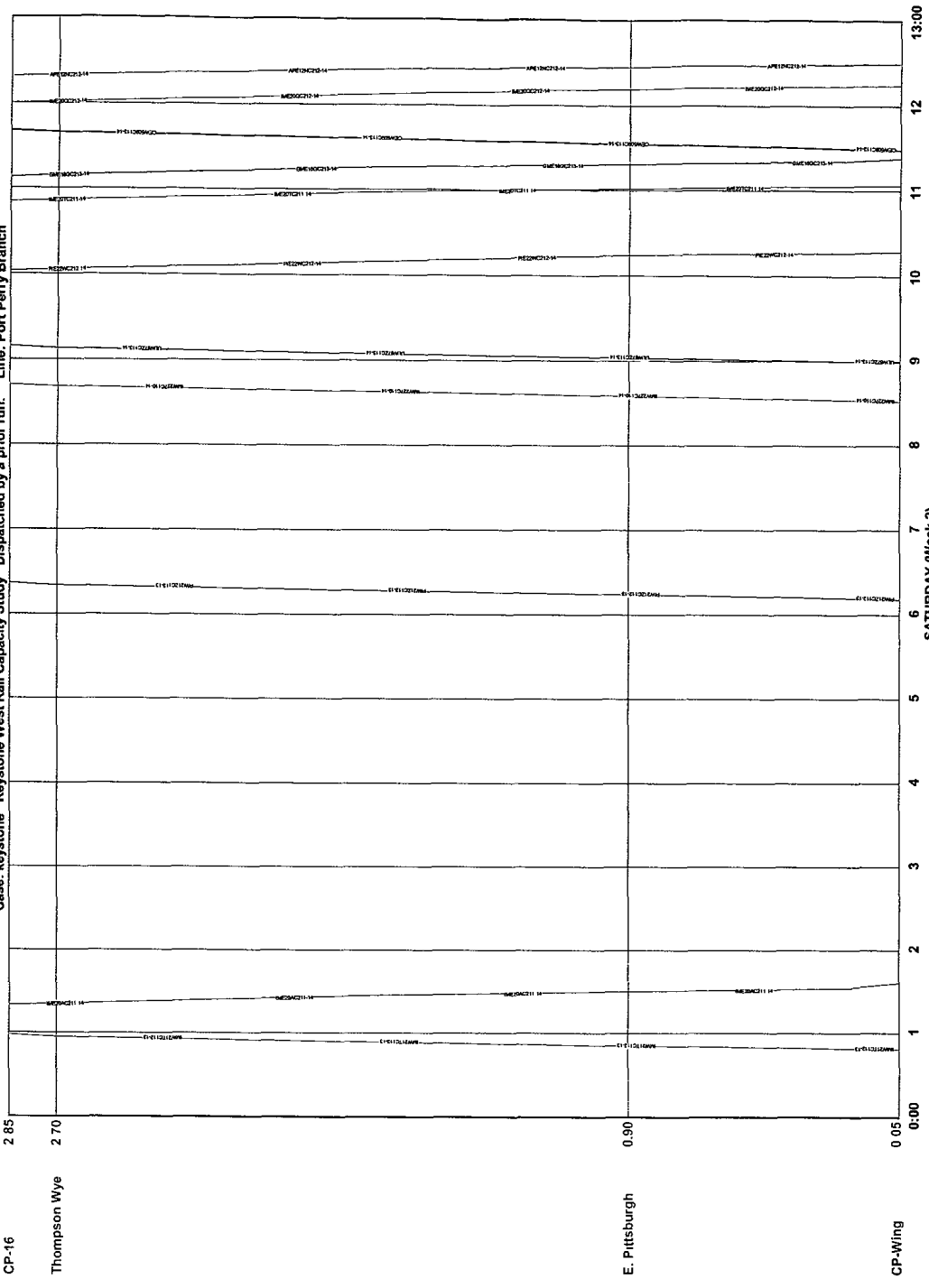
CP-Wing 0.05



24:00
23
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11:00

FRIDAY (Week 2)
Run time: 11 January 2005 15:23:32
RTC version: 2.60 L32E
All times displayed in Eastern time

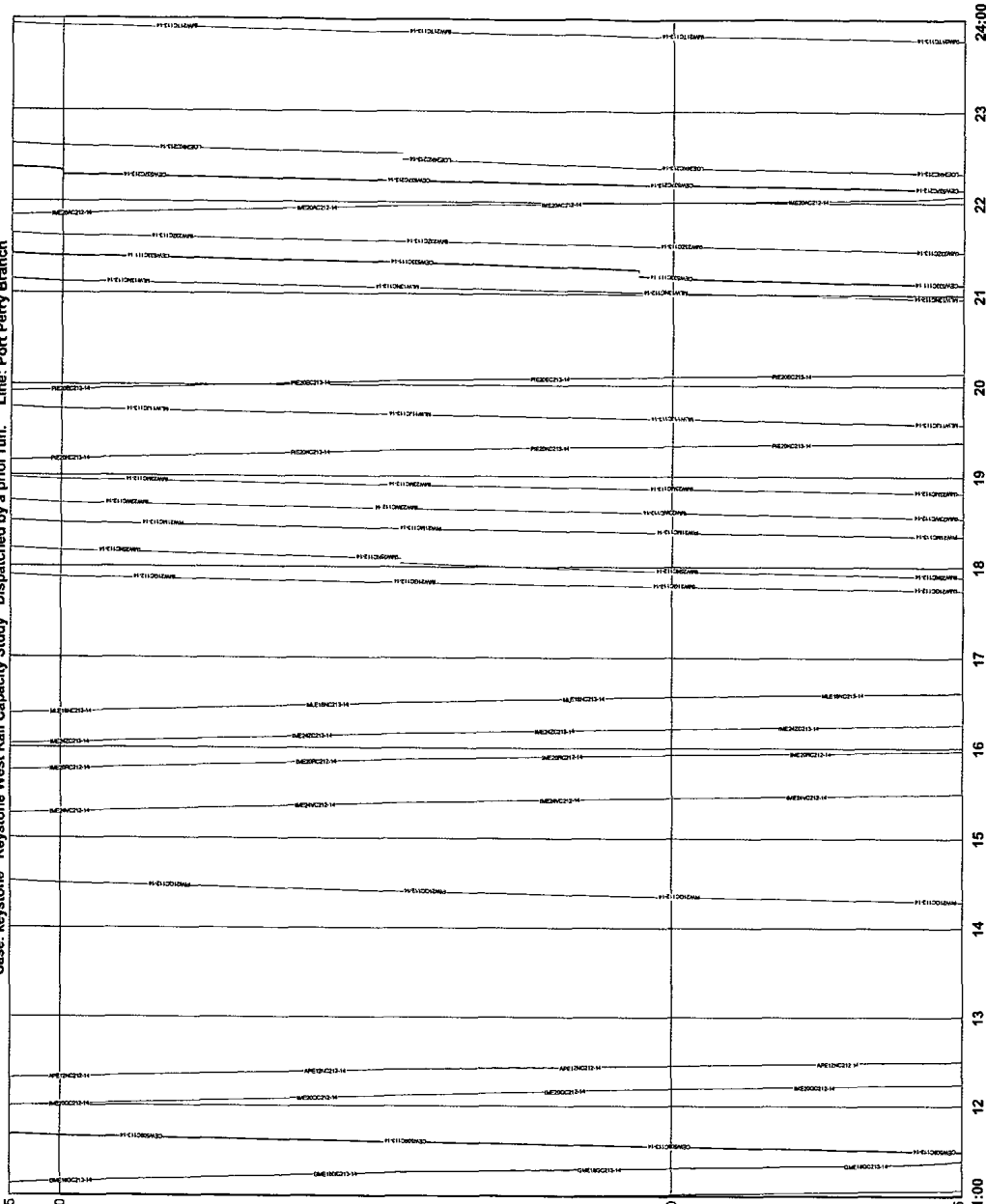
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

All times displayed in Eastern time
SATURDAY (Week 2)
RTC version: 2.60 L32E Run time: 11 January 2005 15:23:59

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Port Perry Branch



CP-16 2.85

Thompson Wye 2.70

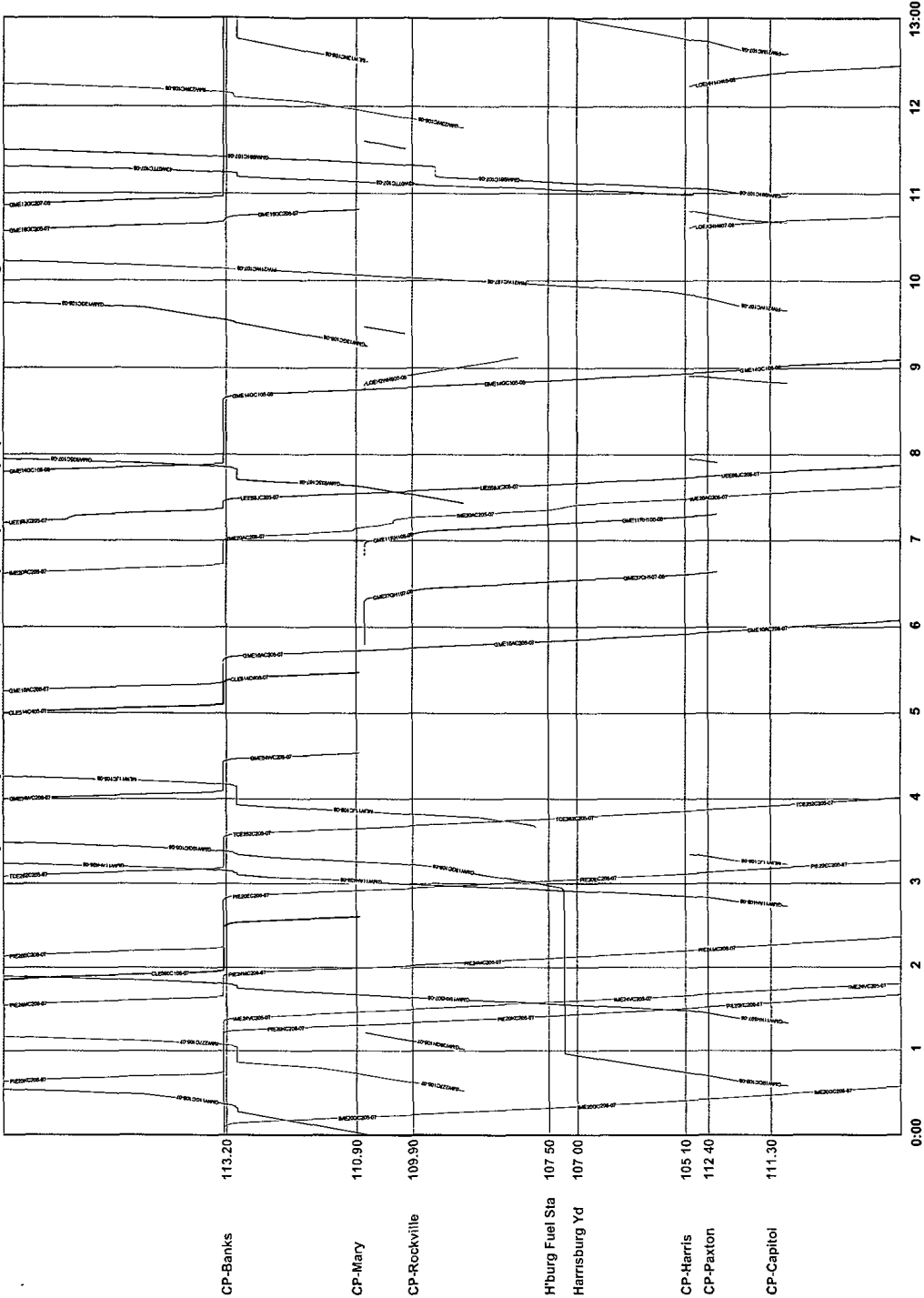
E. Pittsburgh 0.90

CP-Wing 0.05

11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

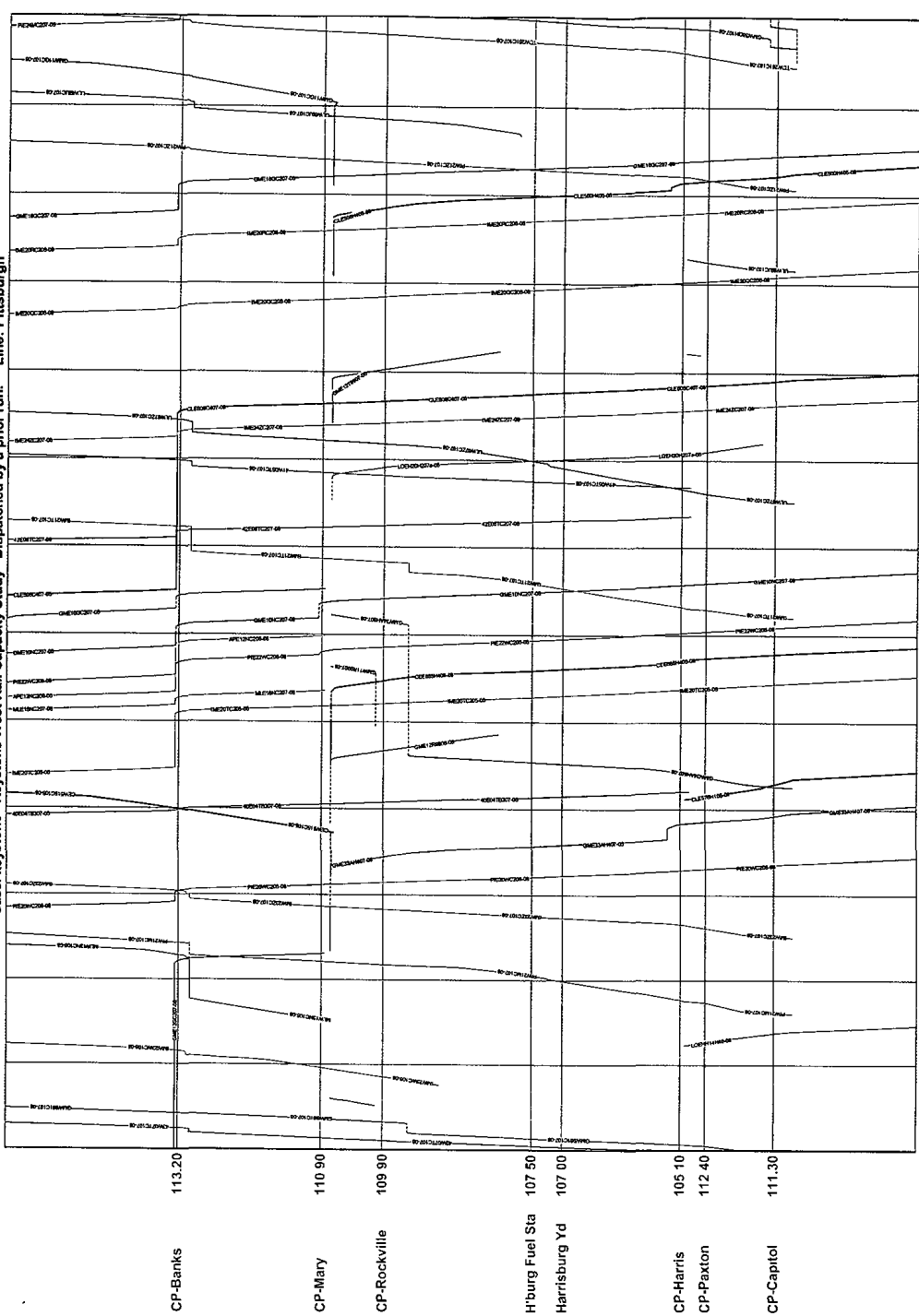
All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 15:24:05 SATURDAY (Week 2)

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



SUNDAY (Week 2) Run time: 11 January 2005 14:21:49
All times displayed in Eastern time RTC version: 2.60 L32E

Case: Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

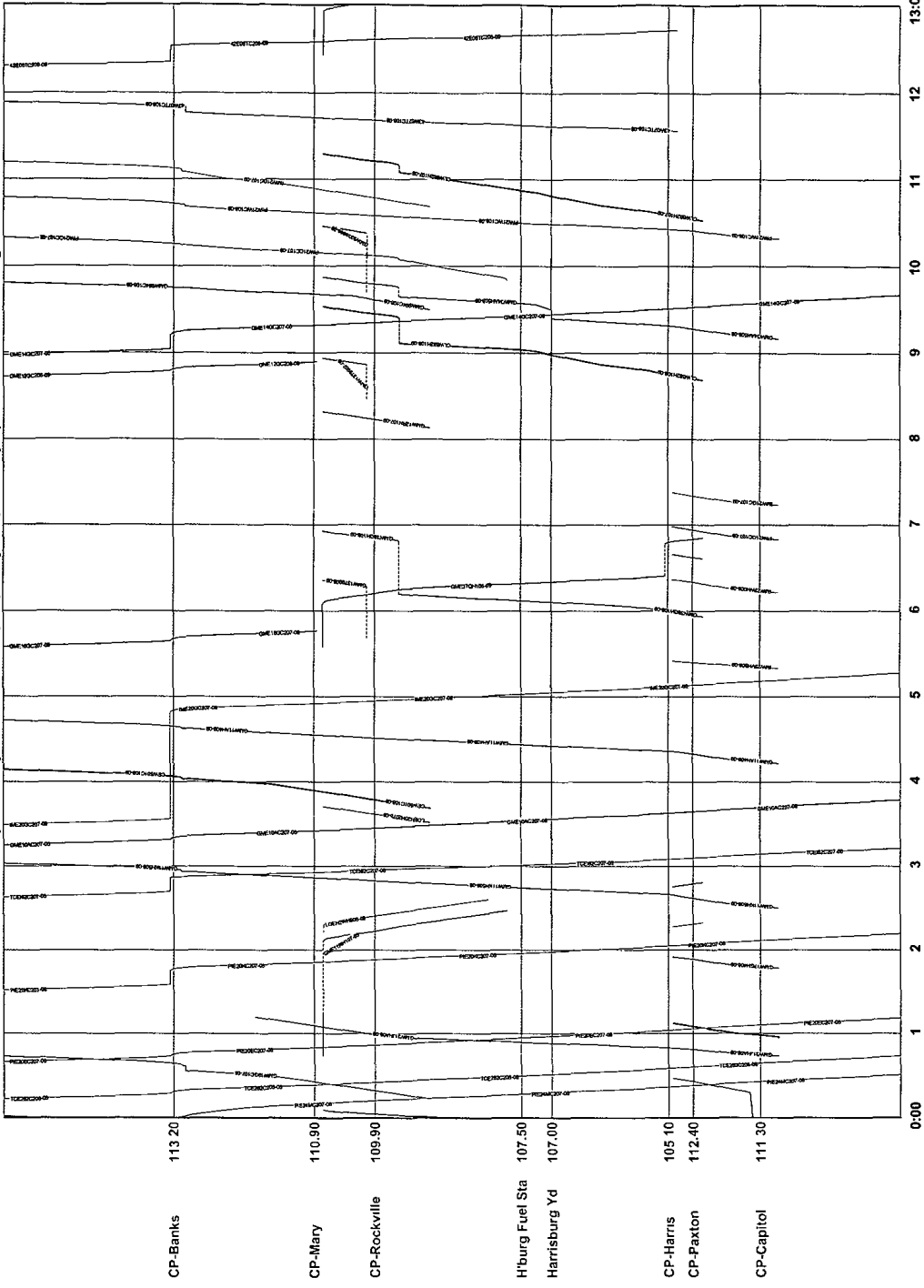


11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

SUNDAY (Week 2) Run time: 11 January 2005 14:22:35
 RTC version: 2.60 L32E

All times displayed in Eastern time

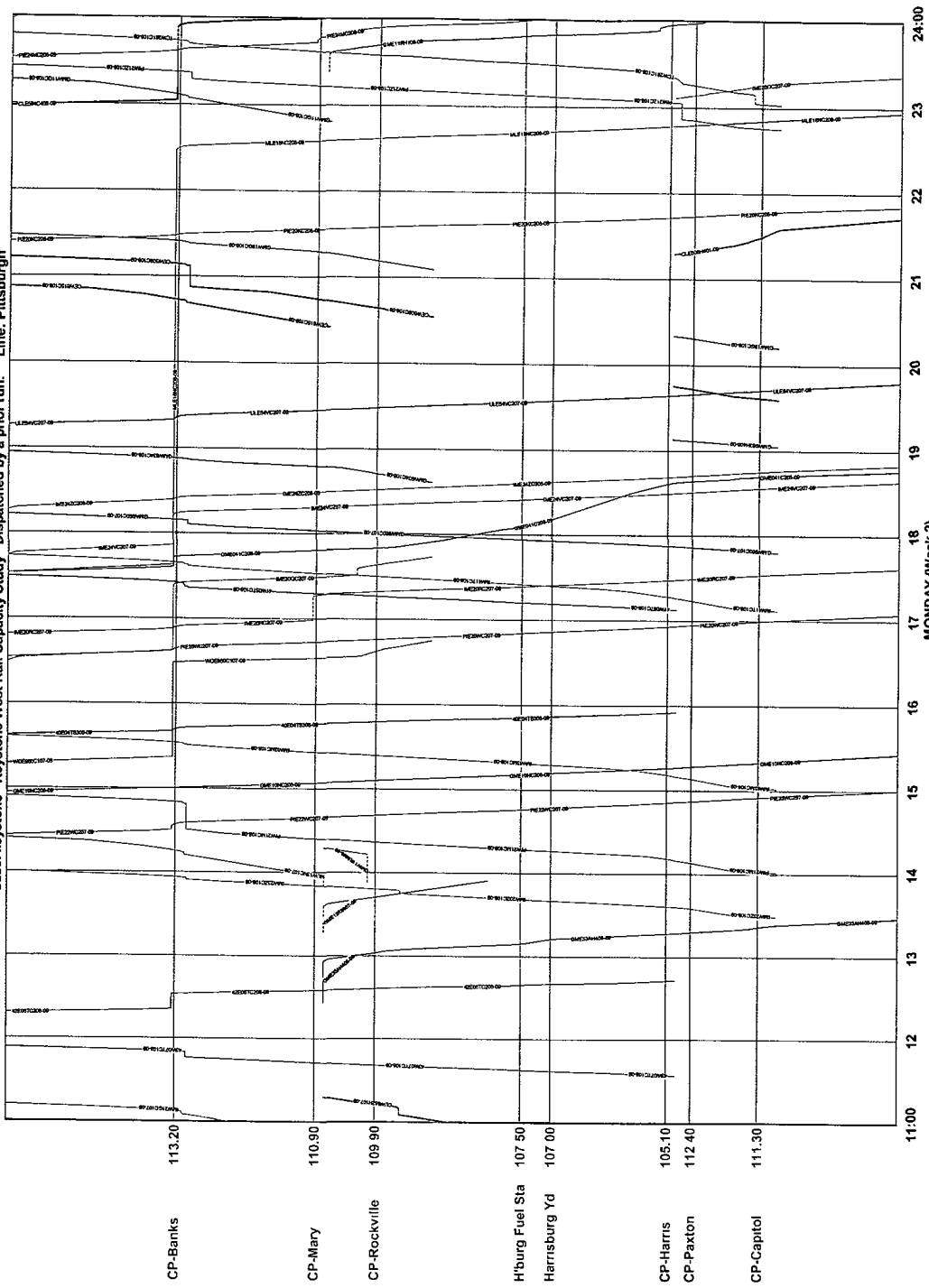
Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

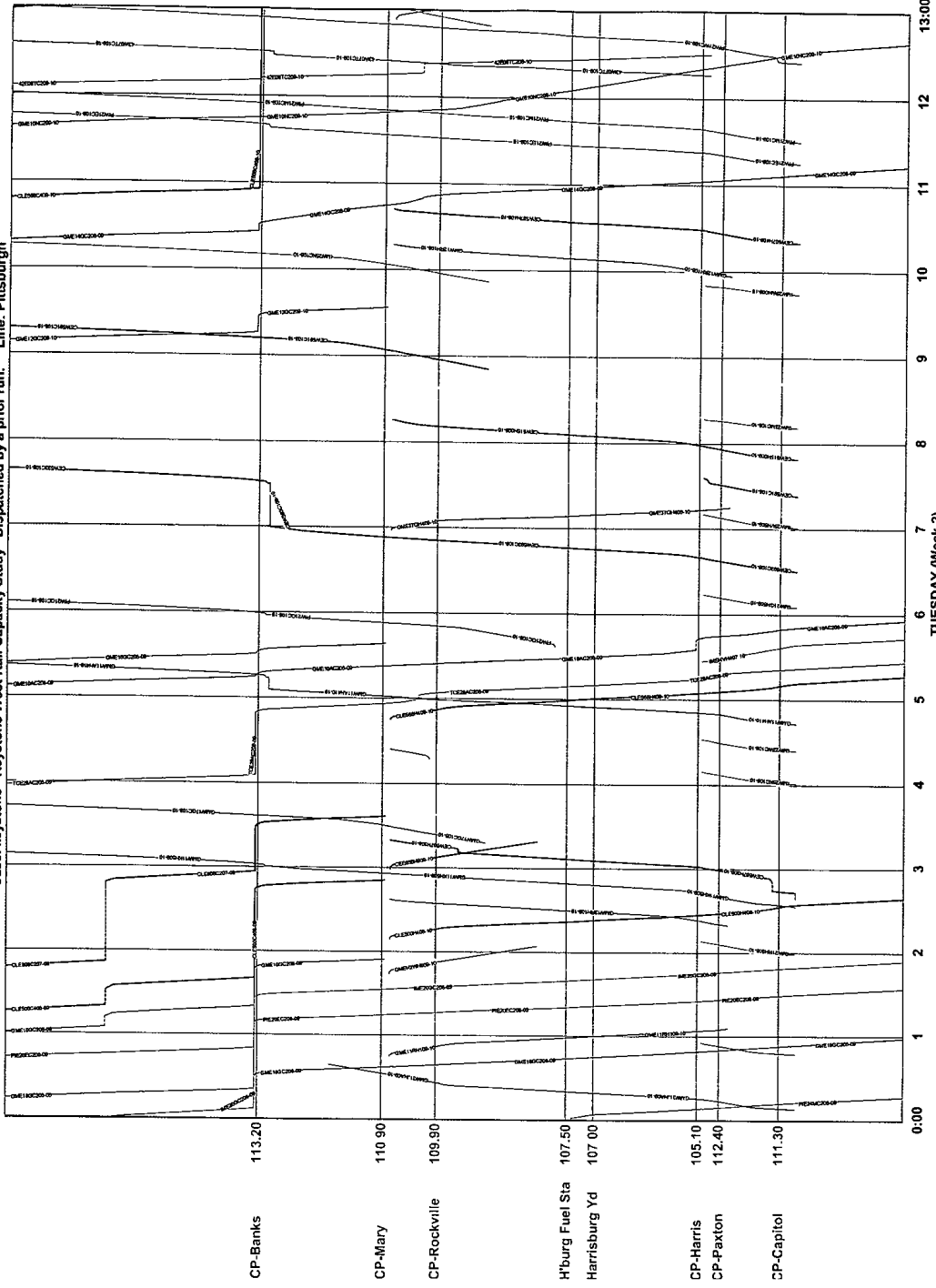
All times displayed in Eastern time
MONDAY (Week 2)
RTC version: 2.60 L32E Run time: 11 January 2005 14:23:38

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



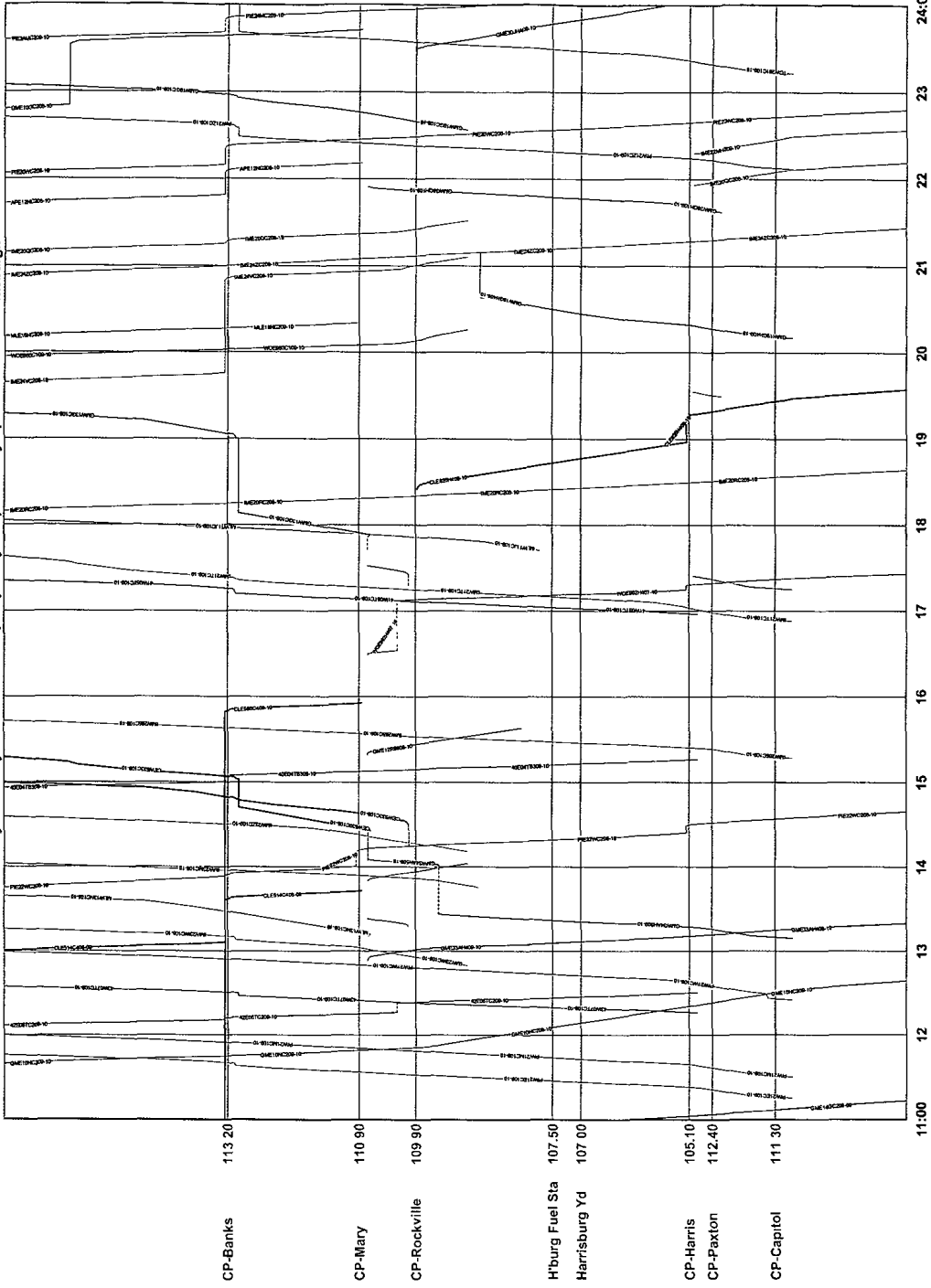
MONDAY (Week 2) Run time: 11 January 2005 14:24:09
RTC version: 2.60 L32E
All times displayed in Eastern time

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



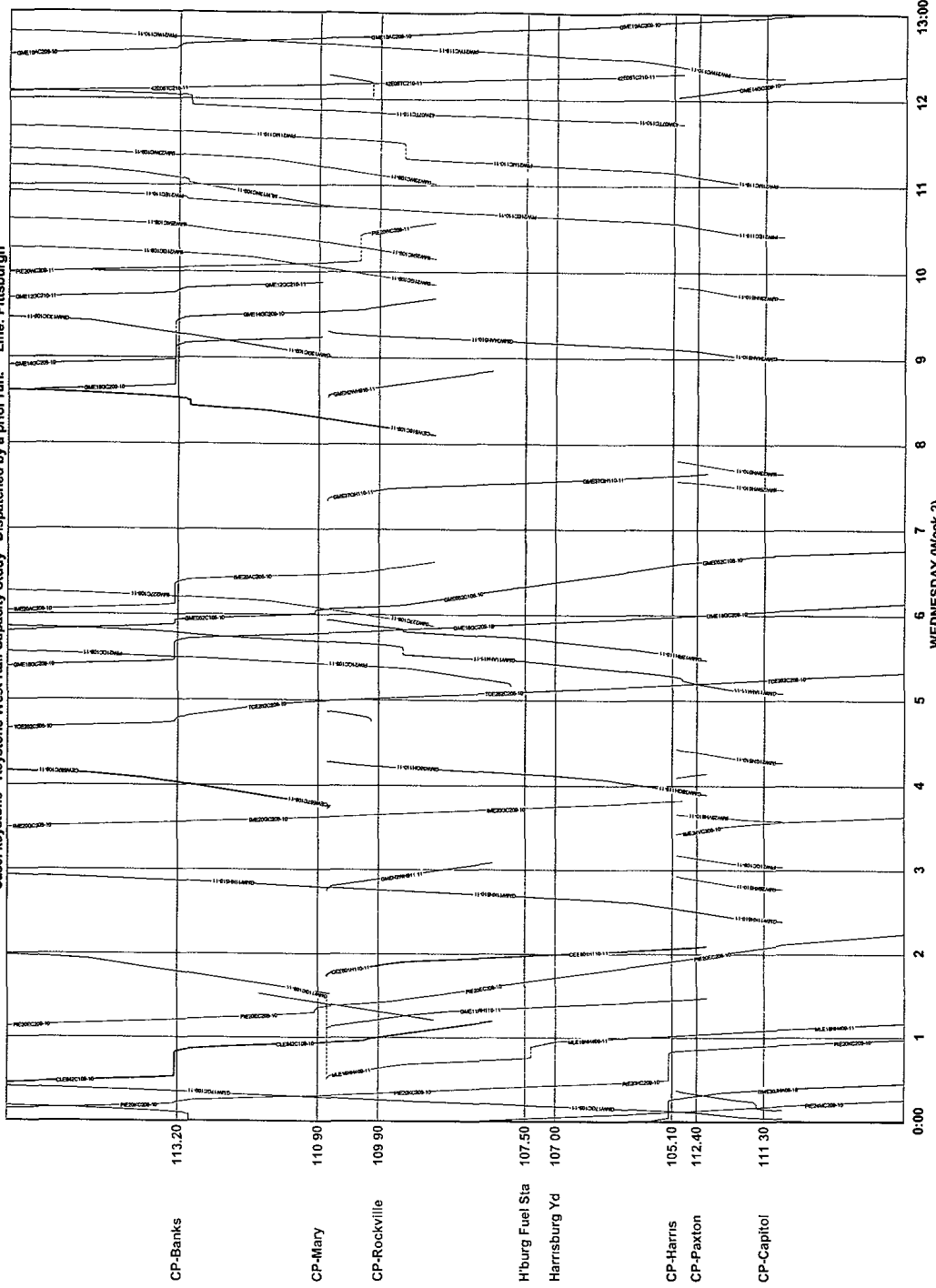
TUESDAY (Week 2)
 Run time: 11 January 2005 14:25:21
 RTC version: 2.60 L32E
 All times displayed in Eastern time

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:26:10

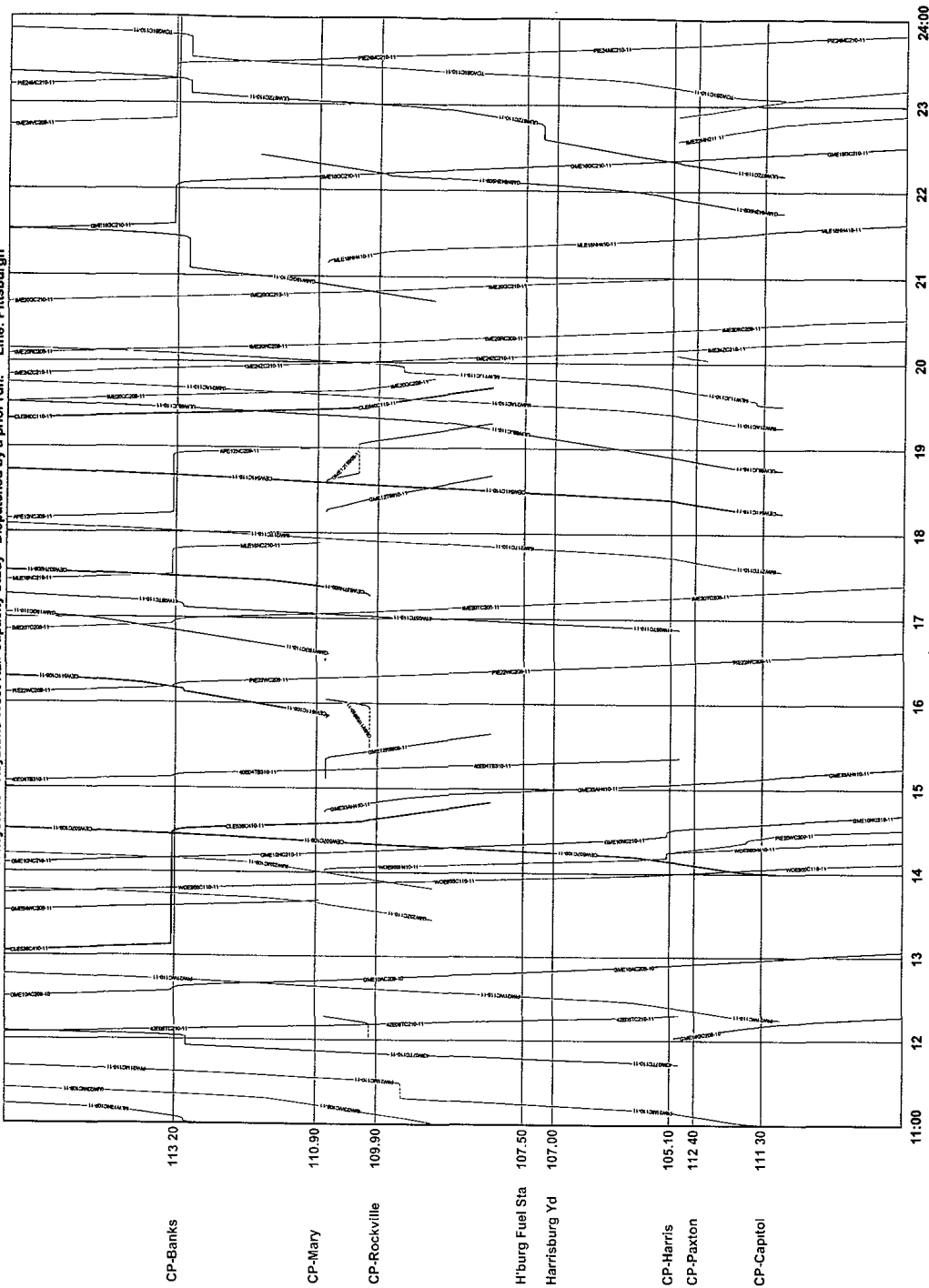
Case: Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

WEDNESDAY (Week 2) Run time: 11 January 2005 14:27:37
RTC version: 2.60 L32E
All times displayed in Eastern time

Case: Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh

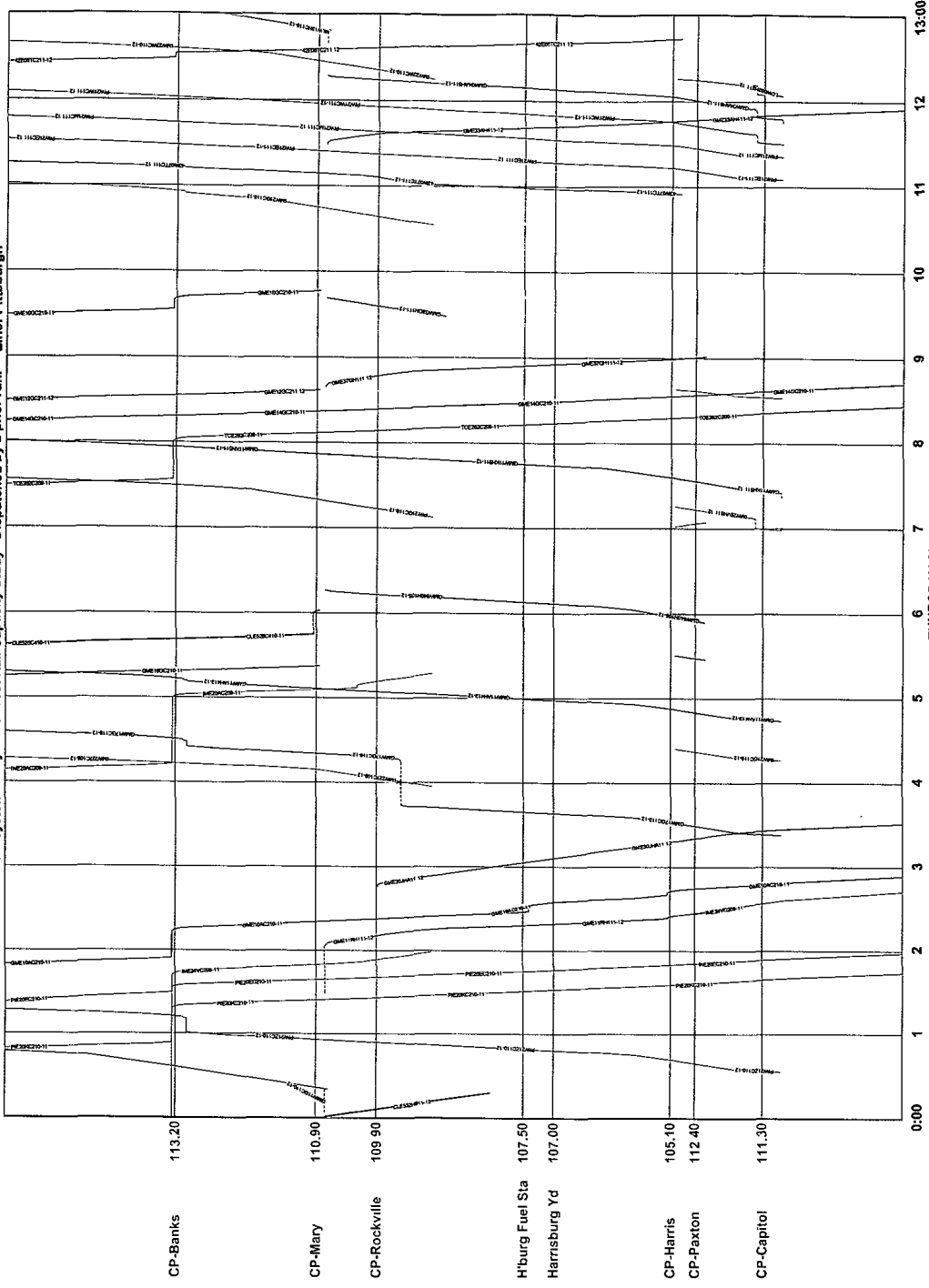


11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

All times displayed in Eastern time RTC version: 2.60 L32E Run time: 11 January 2005 14:28:12

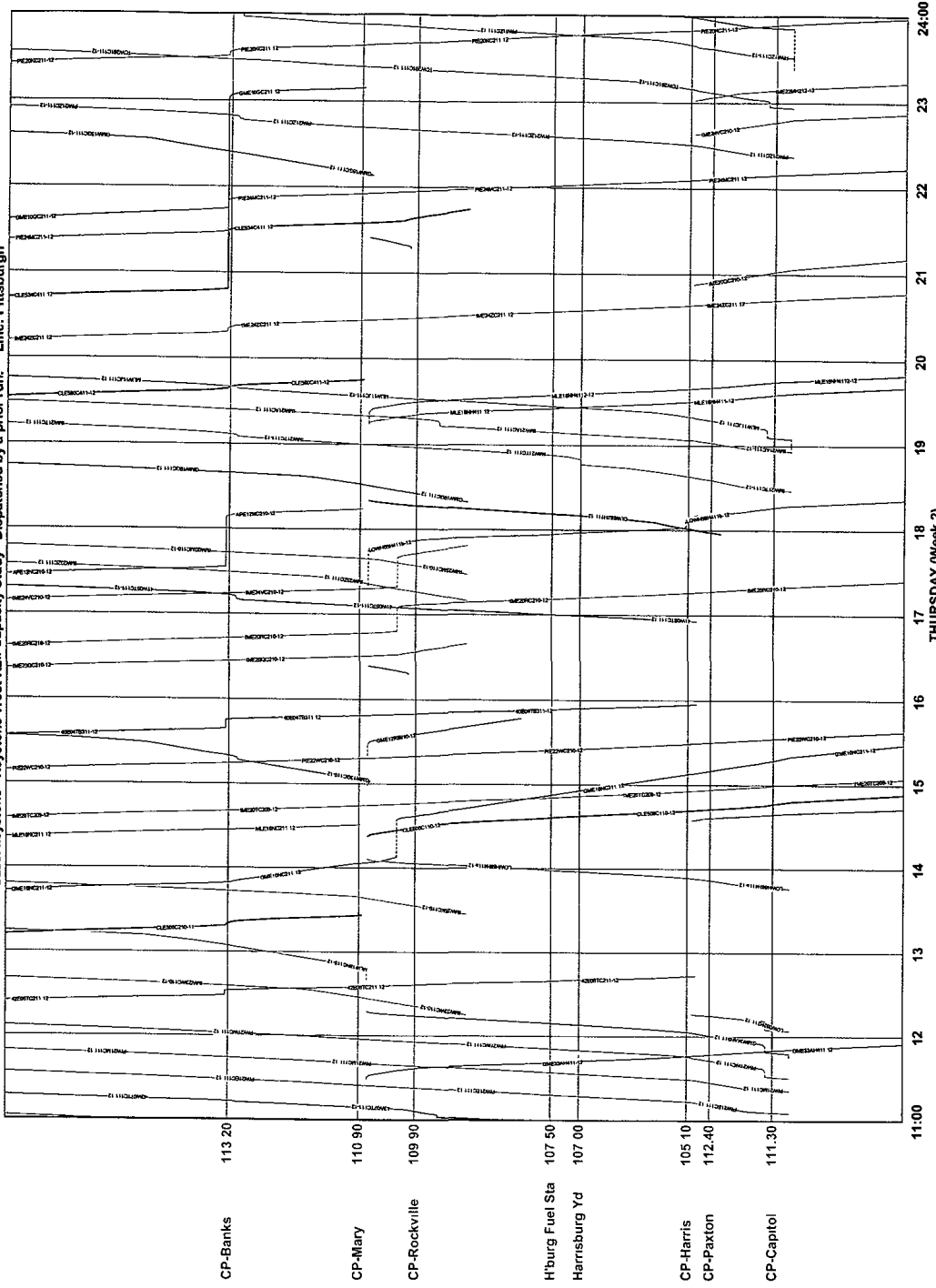


Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



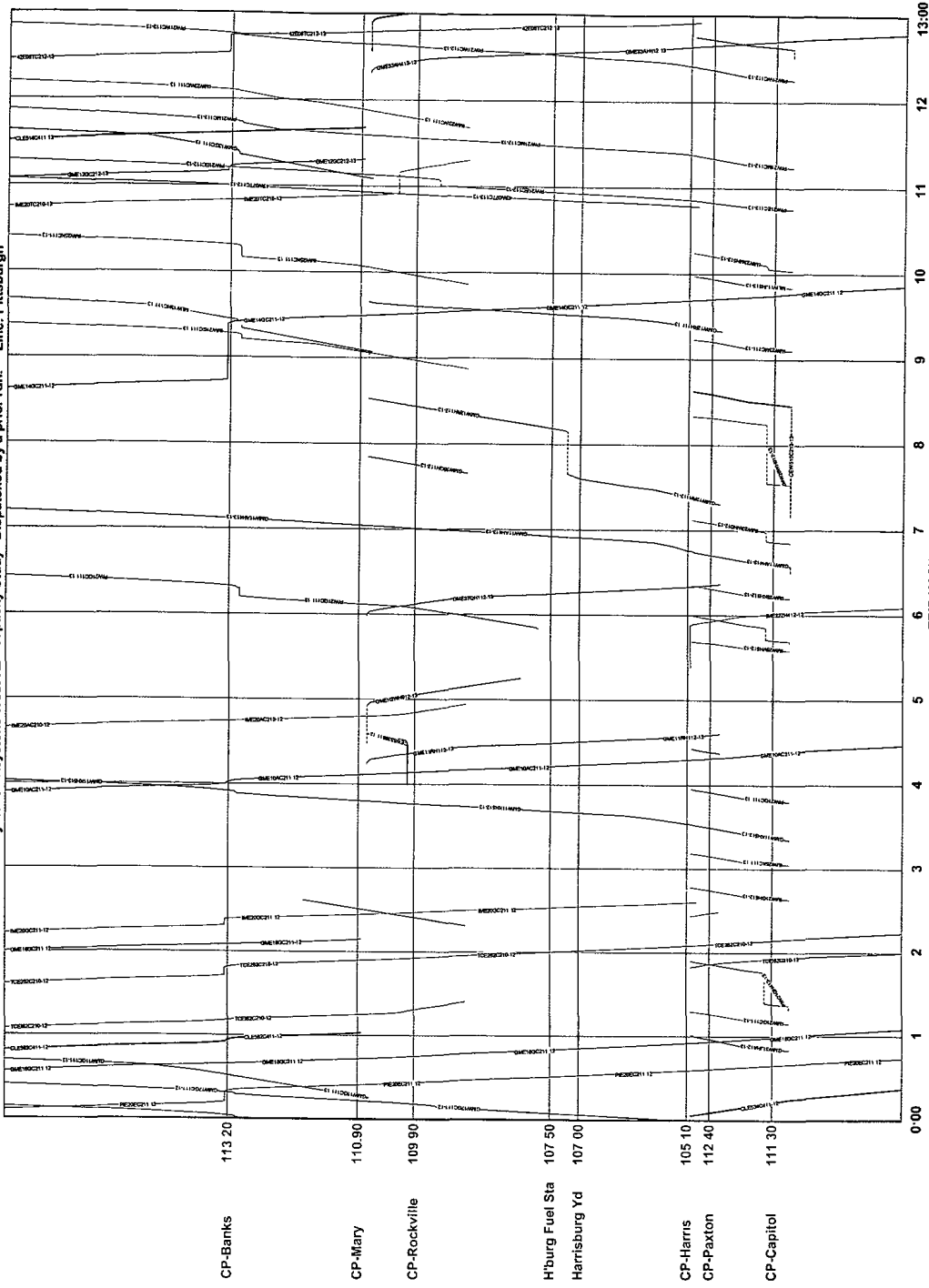
0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00
 THURSDAY (Week 2) Run time 11 January 2005 14:29:17
 RTC version: 2.60 L32E
 All times displayed in Eastern time

Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



All times displayed in Eastern time
 THURSDAY (Week 2)
 RTC version: 2.60 L32E Run time: 11 January 2005 14:29:51

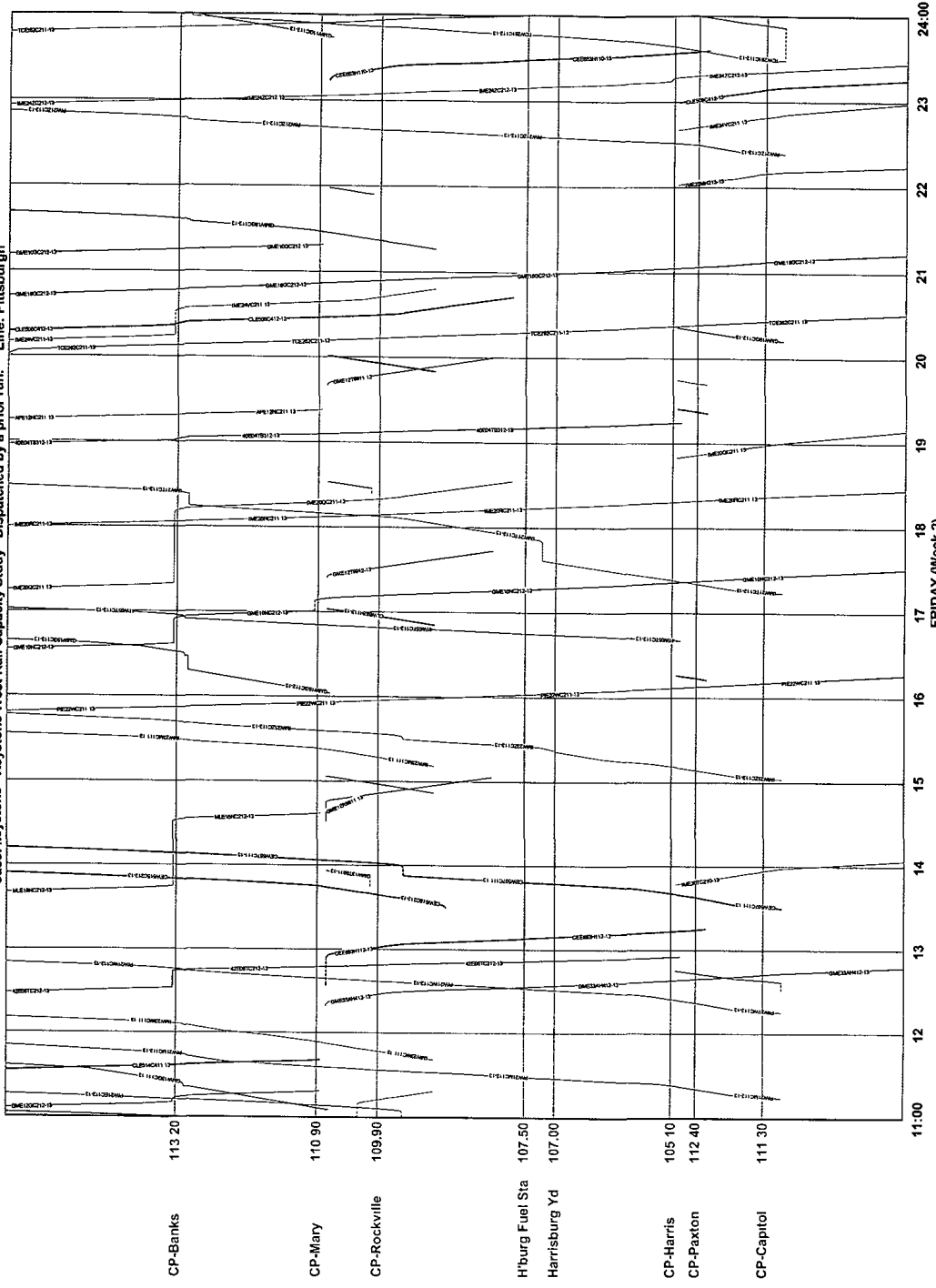
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

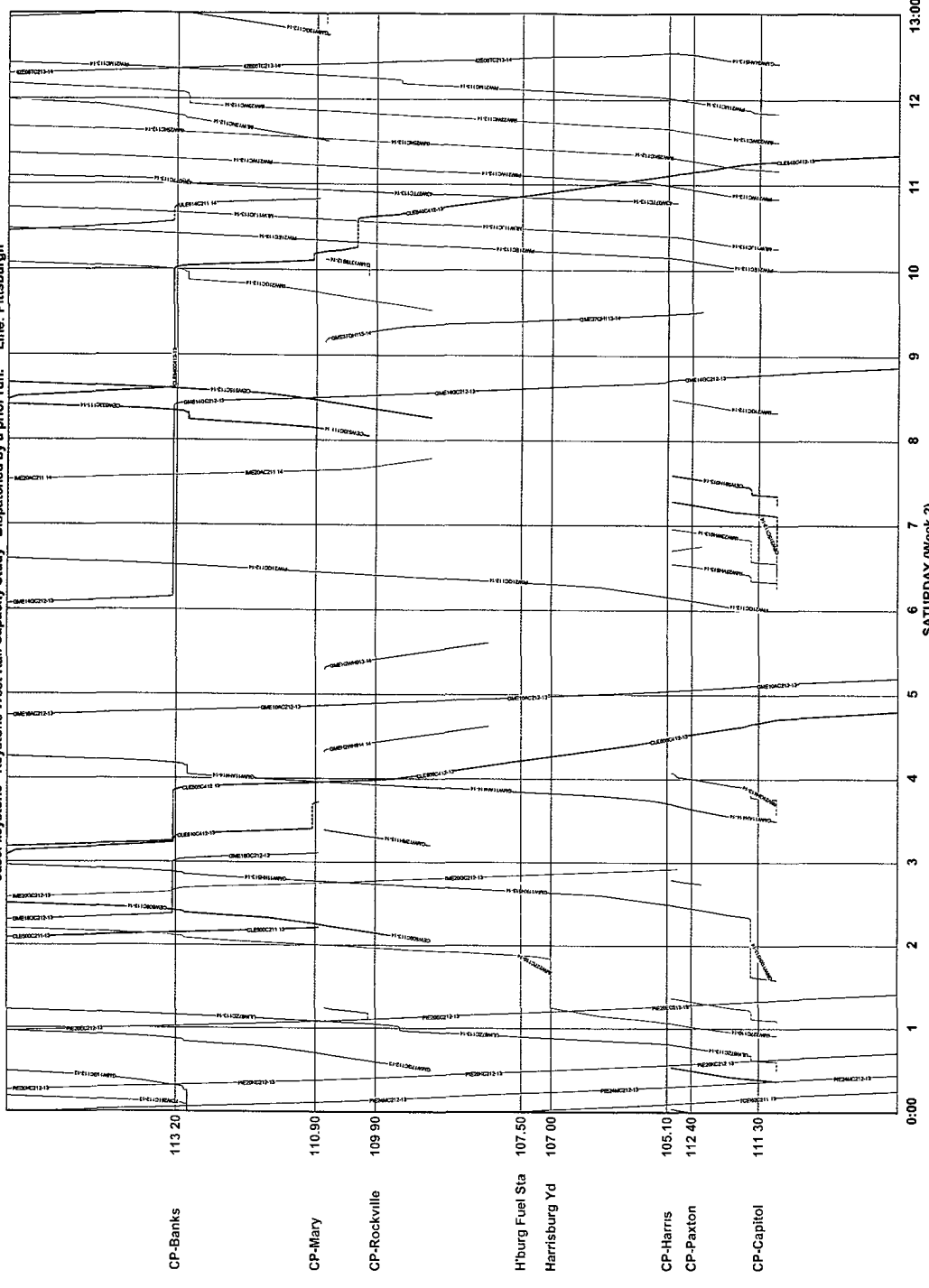
FRIDAY (Week 2) Run time: 11 January 2005 15:15:28
 RTC version: 2.60 L32E
 All times displayed in Eastern time

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



FRIDAY (Week 2)
 All times displayed in Eastern time
 RTC version: 2.60 L32E
 Run time: 11 January 2005 15:16:01

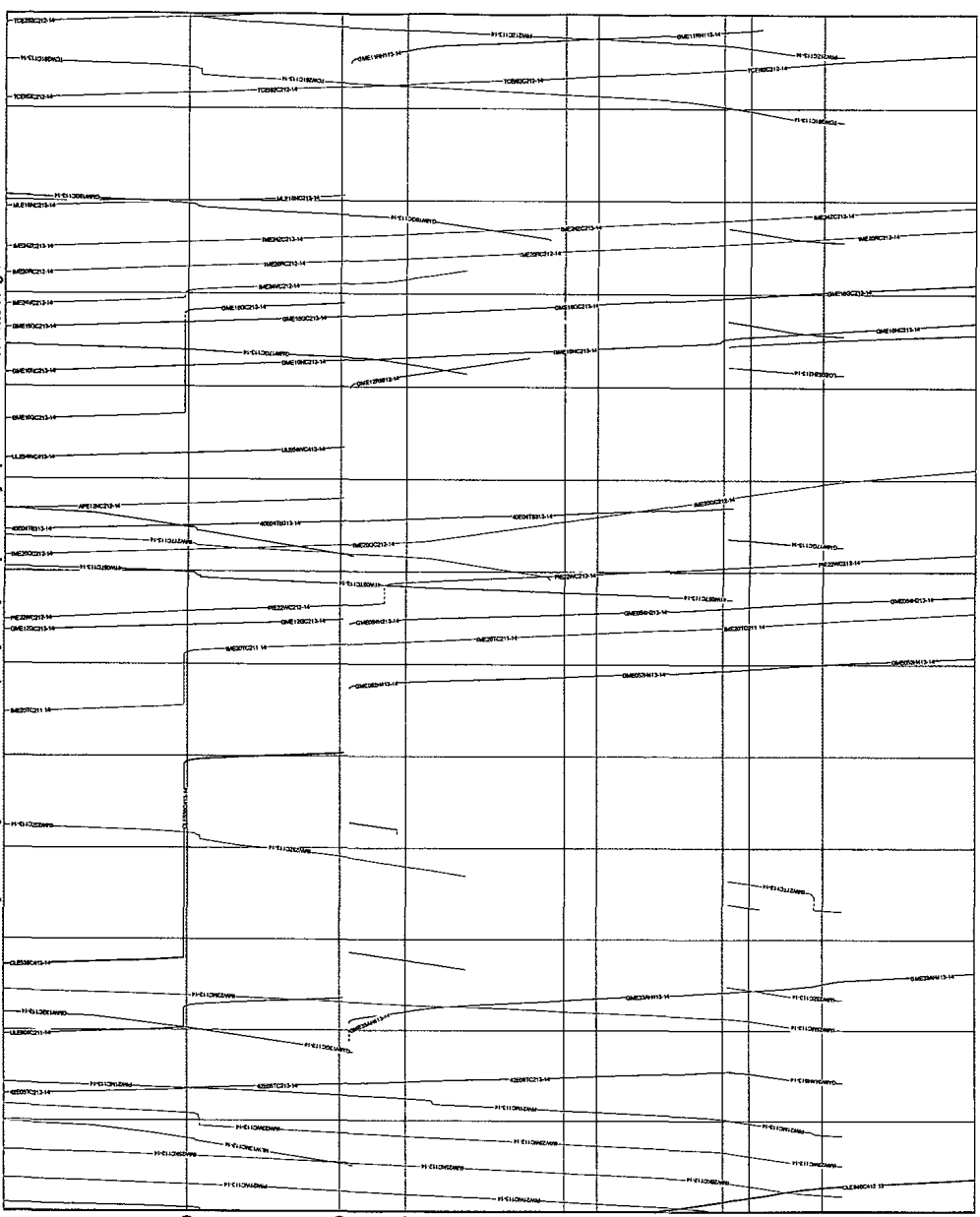
Case: keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



0:00 1 2 3 4 5 6 7 8 9 10 11 12 13:00

SATURDAY (Week 2) Run time: 11 January 2005 15:17:20
RTC version: 2.60 L32E
All times displayed in Eastern time

Case: Keystone Keystone West Rail Capacity Study Dispatched by a prior run. Line: Pittsburgh



11:00 12 13 14 15 16 17 18 19 20 21 22 23 24:00

SATURDAY (Week 2)
All times displayed in Eastern time
RTC version: 2.60 L32E
Run time: 11 January 2005 15:17:55

Simulation start time: Sa 00 00 Duration 9:00 00 (DD:HH:MM) Warm-up exclusion 1:00 00 (DD:HH:MM) Cool-down period: 1:00 00 (DD:HH:MM)
 Net conflicts = 3,986 (768M + 3,218P) Gross conflicts = 8,704 (2,100M + 6,604P) Meet-pass difficulty = 54 (on a scale of 0 to 100) Dispatched trains = 934 (0 failed)

Train type	Run-time Count	Average Speed	Meet-Pass Count	Meet-Pass Delay	Total Dwell	Wait on Schedule	Switch Delay	True Delay	Total Run time	Entry Delay	Total Elapsed	Train Miles	OTF*
	Count	with Dwell	%	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	
Amtrak	70	41 174	0 38	2:16 11	16:30	0	1 02 14	21:22	0	14 21:22	14714.2		
Premium Intermodal	69	32 427	2 21	1 34	2 19:22	0	10 44 23:14	01	0 14	52:07:18	23378.8		
Intermodal	123	27 633	1 03	1:21 04	5 01:50	0	1 43 5:22	28	0	5 22:25	4920.8		
Multiple Crown	18	26 555	3 97	0 00	5:05	1 08:41	0	5 56 8:00	53	0 31	8 01:34	5124.0	
Multiple	26	31 309	2 36	3:10	3:41	0	1 00 2:02	13	0	2 02:13	1572.7		
Automotive parts	6	31 309	2 36	3:10	3:41	0	1 00 2:02	13	0	2 02:13	1572.7		
General Merchandise	199	21 565	3 93	4 04:15	10 17:35	0 22	1 11 11	53:11:17	5 57	53:11:14	27674.4		
Foreign Merchandise	10	5 767	3 86	0 50	11:54	0	0 30 1:02	29	0	1:02 29	152.7		
Coal	139	18 716	4 55	2 22:28	6 15:51	8 15	23 43 24:02	54	4 26	32:07 21	14428.5		
Unit	10	23 078	1 50	3:40	1 00 45	0	1 12 4	13 50	0 06	4:13 56	2534.8		
Local	85	11 716	5 30	1 14:45	4 23:06	13 06	9 39 14:11	59	1 46	14:23 46	4563.5		
Work Train	7	22 948	15 49	5 32	1 04	0 09	2 26	1 00 46					
All train types	760	24 903	3 28	14 02 39	34 09 35	21 55	4 17 13 196	14 11	14 24	197 04 35	117497.9		

Train Group	Run-time Count	Average Speed	Meet-Pass Count	Meet-Pass Delay	Total Dwell	Wait on Schedule	Switch Delay	True Delay	Total Run time	Entry Delay	Total Elapsed	Train Miles	OTF*
	Count	with Dwell	%	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	DD:HH:MM	
Passenger	70	41 174	0 38	2:16 11	16:30	0	1 02 14	21:22	0	14 21:22	14714.2	0 42	
Freight	240	23 679	2 68	2 06 56	9 18:46	0	1 15 28 74 21:30	2 07 74 23:38	53347.6	4 44			
Freight	450	19 286	4 26	9 03 32	21 22:18	21 55	3 00 43 106:19	18 12:16 107 07:34	49436.1	8 83			
All groups	760	24 903	3 28	14 02 39	34 09 35	21 55	4 17 13 196	14 11	14 24	197 04 35	117497.9	5 78	

* Dwell times include time spent at initial and final terminals
 Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times
 True delay = Total elapsed run time - ideal (seed or run-time) elapsed run time
 True delay includes the acceleration and deceleration associated with conflict resolutions
 Stop delay does not have acceleration and deceleration time; it is only the time spent at speed 0
 Meet-Pass Delay % = 100 * True delay / (Total elapsed - True delay - Total dwell - Wait on schedule)
 OTF = On-time performance Trains arriving later than their requested arrival time less a type-specific threshold time are considered late.
 All others are on time
 Warm-up train count = 91 Cool-down train count = 83 Total number of candidate run-time trains excluded from statistics = 174

Statistics for included run-time trains. Dwell times include time spent at initial and final terminals. Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times

Train	Speed w/o dwell	Speed with dwell	Run Time DO NOT USE	Stimulated Run Time	Set Back w/o dwell	Dwell DO NOT USE	Wait on Schedule % of Run Time	Switchover DO NOT USE	Delay DO NOT USE	Entry Delay DO NOT USE	Origin Delay DO NOT USE	Total Delay	Delay per 100-Train mile	Pass 100-Train mile	Cumulative Delay DO NOT USE	F	Coal
99 CWR070100-11	35.10	35.10	6:51:35	6:51:35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2165.2	7
100 CWR070100-10	16.18	16.18	7:35:06	7:35:06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	245.2	7
102 CWR090100-09	25.23	25.23	9:30:23	9:30:23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1410.7	7
104 CWR110100-11	27.22	27.22	3:48:05	3:48:05	1:31:08	1:31:08	39.02	12.994	3.031	1.238	0.000	220.577	2.445	1.36	0.00	1648.1	7
106 CWR130100-11	29.02	29.02	2:42:02	2:42:02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	763.7	7
107 CWR130100-11	29.68	27.81	7:49:37	7:49:37	2:23:31	2:23:31	30.02	5.964	3.41	0.338	0.000	235.209	13.316	6.89	0.00	1735.3	7
108 CWR130100-11	17.73	17.73	13:06:56	13:06:56	3:32:11	3:32:11	0.03	0.014	4:30:32	35.774	0.000	239.254	10.524	5.09	0.00	1926.6	7
110 CWR150009-10	14.54	14.54	3:29:04	3:29:04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	592.7	7
111 CWR150009-10	24.94	21.80	3:58:17	3:58:17	3:58:25	0.064	39.01	12.594	0.000	0.000	0.000	86.641	0.154	0.06	0.00	479.4	7
112 CWR150009-10	23.02	23.02	10:07:37	10:07:37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1052.7	7
113 CWR150009-10	17.25	17.25	13:18:58	13:18:58	1:33:23	1:33:23	0.03	0.014	2:13:22	21.534	0.000	233.259	0.171	0.09	0.00	1325.3	7
114 CWR150009-10	16.33	16.33	9:51:16	9:51:16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	151.3	7
115 CWR150009-10	16.65	16.65	21:08:09	21:08:09	21:27:34	1:59:25	10.00	46.004	6:48:55	31.564	0.000	122.075	15.906	7.49	0.00	1172.4	7
116 CWR170009-09	29.37	29.37	3:43:44	3:43:44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	209.8	7
117 CWR170009-09	30.15	30.15	7:44:56	7:44:56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	800.1	7
118 CWR170009-09	29.00	25.57	3:49:46	3:49:46	4:13:46	13:45:18	39.01	11.934	8:23	0.000	0.000	121.238	19.742	10.72	0.00	900.1	7
119 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
120 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
121 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
122 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
123 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
124 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
125 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
126 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
127 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
128 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
129 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
130 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
131 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
132 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
133 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
134 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
135 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
136 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
137 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
138 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
139 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
140 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
141 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
142 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
143 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
144 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
145 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
146 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7
147 CWR170009-09	28.00	18.02	1:24:09	1:24:09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1016.9	7

Statistics for included run-time trains. Swell times include time spent at initial and final terminals. Empty delay (time held out of network as opposed to origin delay and dwell) included in delay times

Train	Average Speed % of Dwell	Average Speed min/hr	Run Time min	Stalled min	Swallow min	Swallow % of Run Time	Swallow % of Dwell	Total Dwell min	Total Dwell % of Run Time	Total Dwell % of Dwell	Wait on Schedule min	Wait on Schedule % of Run Time	Wait on Schedule % of Dwell	Empty Delay min	Empty Delay % of Run Time	Empty Delay % of Dwell	Origin Delay min	Origin Delay % of Run Time	Origin Delay % of Dwell	300-Train Misses	300-Train Misses % of Run Time	300-Train Misses % of Dwell	Pass Misses	Pass Misses % of Run Time	Pass Misses % of Dwell	Cumulative Delay min	Cumulative Delay % of Run Time	Cumulative Delay % of Dwell	Train
148 CWS360040-10	18.60	18.84	29.59	29.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	148.2	Coal
150 CWS360210-11	17.20	17.20	16.02	16.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150.2	Coal
152 CWS360410-13	17.62	17.62	15.32	15.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	152.2	Coal
153 CWS360412-13	16.63	16.62	16.49	16.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	153.2	Coal
154 CWS360412-13	24.83	24.86	10.87	10.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	154.2	Coal
156 CWS364008-09	16.98	16.96	16.18	16.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	156.2	Coal
158 CWS364011-13	24.49	24.49	11.16	11.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	158.2	Coal
159 CWS364011-13	18.47	18.44	4.11	4.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	159.2	Coal
161 CWS364019-10	23.68	23.68	2.21	2.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	161.2	Coal
162 CWS364019-10	14.82	14.82	4.11	4.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	162.2	Coal
163 CWS364019-10	16.86	16.86	9.05	9.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	163.2	Coal
164 CWS364019-10	9.66	9.66	17.16	17.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	164.2	Coal
166 CWS364019-10	17.39	17.39	9.41	9.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	166.2	Coal
168 CWS364019-10	21.83	21.83	12.40	12.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	168.2	Coal
169 CWS364019-10	26.68	26.72	6.34	6.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	169.2	Coal
170 CWS364019-10	15.85	15.85	17.32	17.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	170.2	Coal
171 CWS364019-10	15.85	15.85	17.32	17.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	171.2	Coal
172 CWS364019-10	25.87	25.87	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	172.2	Coal
173 CWS364019-10	14.22	14.22	3.09	3.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	173.2	Coal
174 CWS364019-10	14.22	14.22	3.09	3.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	174.2	Coal
175 CWS364019-10	13.25	13.25	9.03	9.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	175.2	Coal
176 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	176.2	Coal
177 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	177.2	Coal
178 CWS364019-10	16.41	16.41	14.11	14.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.2	Coal
180 CWS364019-10	22.75	22.75	18.55	18.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.2	Coal
181 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	181.2	Coal
182 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.2	Coal
184 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.2	Coal
185 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	185.2	Coal
186 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	186.2	Coal
187 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.2	Coal
188 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.2	Coal
189 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.2	Coal
190 CWS364019-10	14.25	14.25	9.83	9.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.2	Coal
191 CWS364019-10	22.00	22.00	7.05	7.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	191.2	Coal
192 CWS364019-10	21.25	21.25	7.29	7.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	192.2	Coal
193 CWS364019-10	17.61	17.61	12.15	12.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	193.2	Coal
194 CWS364019-10	13.10	13.10	23.73	23.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	194.2	Coal
196 CWS364019-10	11.79	11.79	32.24	32.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	196.2	Coal

Statistics for included run-time trains. Dwell times include time spent at initial and final terminals. Entry delay (time held out of network as opposed to origin delay and dwell) included in delay time

Train	Average Speed (mph)	Run Time (min)	Run Time (sec)	Simulated Run Time (min)	Simulated Run Time (sec)	Wait on Schedules (min)	Wait on Schedules (sec)	Switch Delay (min)	Switch Delay (sec)	True* Delay (min)	True* Delay (sec)	Origin Delay (min)	Origin Delay (sec)	Total Delay (min)	Total Delay (sec)	Delay per Mile (min)	Delay per Mile (sec)	Net* Delay (min)	Net* Delay (sec)	Comprehensive Delay (min)	Comprehensive Delay (sec)	Total	
247 OML10N218-10	24.81	23.72	1116.29	1116.29	1116.29	4.114	153.17	16.024	0.738	0	0	4.37	0.738	37.05	269.395	0.000	0.000	1.837	1.837	0.000	0.000	7	
248 OML10N218-12	22.65	21.92	1145.29	1218.25	4.674	4.074	2.4858	22.881	0	0	32.56	4.674	0	0	269.748	269.748	-0.024	-0.024	12.209	12.209	0.000	0.000	7
249 OML10N218-14	19.91	18.02	1552.27	1552.27	5.661	1.3003	5.2232	33.371	0.000	0	31.0	0.000	0	0	286.025	286.025	0.025	0.025	0.000	0.000	0.000	0.000	7
250 OML10N218-16	2.95	2.95	18.35	33.39	198.074	0.000	0.000	0.000	0.000	0	36.94	66.518	2.725	36.94	2.725	0.000	0.000	139.003	139.003	0.000	0.000	7	
251 OML10N218-18	11.63	6.20	105.54	113.44	11.828	39.00	40.894	0.000	0.000	0	7.504	10.628	8.476	22.312	8.476	0.000	0.000	82.418	82.418	0.000	0.000	7	
252 OML10N218-20	9.95	6.27	121.28	121.02	-0.264	39.00	37.001	2.061	0.000	0	22.0	0.000	8.476	32.312	8.476	0.000	0.000	69.000	69.000	0.000	0.000	7	
253 OML10N218-22	14.31	14.31	35.33	35.33	0.000	0.000	0.000	0.000	0.000	0	1.22	4.188	8.476	32.312	8.476	0.000	0.000	30.000	30.000	0.000	0.000	7	
254 OML10N218-24	7.02	6.93	112.02	112.02	0.000	1.384	0.000	0.000	0.000	0	0.000	0.000	8.476	32.312	8.476	0.000	0.000	36.324	36.324	0.000	0.000	7	
255 OML10N218-26	14.05	13.67	37.12	37.12	0.000	1.00	2.698	0.000	0.000	0	0.000	0.000	8.476	32.312	8.476	0.000	0.000	0.000	0.000	0.000	0.000	7	
256 OML10N218-28	24.29	23.21	1116.44	1116.44	0.000	39.00	4.444	2.442	24.333	0.000	0.000	0.000	0.000	0	261.879	261.879	0.000	0.000	0.000	0.000	7		
257 OML10N218-30	31.99	29.86	837.59	845.35	1.774	39.00	2.534	0.000	0.000	0	7.36	1.454	0.000	0	261.867	261.867	0.000	0.000	2.896	2.896	7		
258 OML10N218-32	24.34	23.09	1026.00	1026.00	0.000	39.00	0.000	0.000	0.000	0	0.000	0.000	0.000	0	261.879	261.879	0.000	0.000	0.000	0.000	7		
259 OML10N218-34	4.37	2.43	48.53	1.0724	37.888	39.00	44.318	4.000	2.4235	26.311	0.000	0.000	0.000	4	261.879	261.879	0.000	0.000	0.000	0.000	7		
260 OML10N218-36	6.28	4.37	11.97	33.07	0.000	39.00	3.000	0.000	0.000	0	0.000	0.000	0.000	0	261.879	261.879	0.000	0.000	157.452	157.452	7		
261 OML10N218-38	6.07	4.05	32.16	40.25	25.814	13.30	33.408	0.000	0.000	0	8.09	20.468	8.69	7.23	2.725	2.725	200.940	200.940	0.000	0.000	7		
262 OML10N218-40	9.78	8.20	15.43	15.43	0.000	1.00	2.071	0.000	0.000	0	14	30.00	0.000	0	2.725	2.725	310.000	310.000	0.000	0.000	7		
263 OML10N218-42	8.25	3.33	49.08	49.08	0.000	39.00	61.028	0.000	0.000	0	10.0	0.000	0.000	0	2.725	2.725	310.000	310.000	0.000	0.000	7		
264 OML10N218-44	6.63	6.39	25.35	25.35	0.000	1.00	3.318	0.000	0.000	0	0.000	0.000	0.000	0	2.725	2.725	0.000	0.000	0.000	0.000	7		
265 OML10N218-46	8.65	8.59	19.31	19.31	0.000	1.00	5.558	0.000	0.000	0	0.000	0.000	0.000	0	2.725	2.725	0.000	0.000	0.000	0.000	7		
266 OML10N218-48	20.68	29.34	909.40	909.40	0.000	24.05	4.384	15.445	10.148	0.000	4.23	0.000	0.000	0	268.781	268.781	0.000	0.000	1.693	1.693	7		
267 OML10N218-50	22.20	21.49	1219.07	1219.07	0.000	24.07	3.213	21.531	0.000	0	12.08	1.728	0.000	0	269.395	269.395	0.000	0.000	4.815	4.815	7		
268 OML10N218-52	20.86	19.92	132.06	132.06	-0.028	48.05	4.948	3.1759	74.388	0.000	0.000	0.000	0.000	0	269.593	269.593	0.000	0.000	0.000	0.000	7		
269 OML10N218-54	26.34	24.91	1047.32	1047.32	0.000	39.00	5.621	1.3906	6.841	0.000	0.000	0.000	0.000	0	268.781	268.781	0.000	0.000	0.000	0.000	7		
270 OML10N218-56	27.59	23.86	1013.07	1013.07	-0.298	39.00	13.668	2.5604	12.000	0.000	18.10	2.000	0.000	0	268.781	268.781	0.000	0.000	6.809	6.809	7		
271 OML10N218-58	24.52	23.48	1150.46	1150.46	0.000	39.00	34.04	2.2814	20.831	0.000	0.000	0.000	0.000	0	278.529	278.529	0.000	0.000	0.000	0.000	7		
272 OML10N218-60	22.86	21.14	1248.21	1248.21	2.091	49.02	5.054	3.0334	25.221	0.000	22.12	2.311	0.000	0	278.504	278.504	0.000	0.000	7.970	7.970	7		
273 OML10N218-62	25.26	24.44	1121.38	1124.09	0.376	49.02	5.058	2.1	26.078	0.000	2.31	0.000	0.000	0	278.529	278.529	0.000	0.000	0.000	0.000	7		
274 OML10N218-64	22.83	22.82	1141.56	1141.56	0.000	6.3505	34.861	5.1122	17.311	22.13W	0.000	0.000	0.000	0	278.504	278.504	0.000	0.000	0.000	0.000	7		
275 OML10N218-66	23.83	22.82	1141.56	1149.27	1.071	6.3505	34.861	2.3959	25.371	0.000	7.31	1.088	0.000	0	269.822	269.822	0.000	0.000	2.788	2.788	7		

Statistics for included run-time trains: Delay times include time spent at initial and final terminals. Error delay (time held out of network as opposed to origin delay and dwell) included in delay time

Train	Average Speed	Average Utilization	Run Time	Simulated Size	% of Schedule	Dwell	% of Schedule	Wait on	% of Schedule	Switch	% of Schedule	Delay	% of Schedule	Origin	% of Schedule	Total	% of Schedule	100-Train	Per Mile	Cumulative	% of Schedule
344 GMM180312-13	20.02	19.35	13 51 53	15 58 00	0.788	30 03	3.584	4 30 13	15 231	0	0	6 27	0.271	8 15	0.271	270 154	2.935	0.000	0.000	0.000	0.000
344 GMM182007-08	3.02	3.02	19 17 43	19 54 03	202.088	34	0.000	1 05 00	0.000	0	0	36 20	0.000	36 20	0.000	272 728	1323 233	202.088	0.000	0.000	0.000
344 GMM182010-11	5.87	5.75	19 27 02	20 00 00	122.658	1 00	0.000	0 00 00	0.000	0	0	23 49	0.000	23 49	0.000	2 728	874 068	122.658	0.000	0.000	0.000
344 GMM182012-13	8.60	8.60	17 02 00	17 02 00	0.000	0	0.000	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182014-15	7.89	7.89	17 02 00	17 02 00	0.000	0	0.000	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182016-17	7.89	7.89	17 02 00	17 02 00	0.000	0	0.000	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182018-19	14.97	14.43	34 37 00	35 14 00	15 838	1 00 00	47 574	0 00 00	0.000	0	0	5 25	0.000	5 01	0.000	8 476	107 885	15 570	0.000	0.000	0.000
344 GMM182020-21	11.55	11.55	33 32 00	34 03 00	31 368	0	0.000	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	8 476	42 843	15 570	0.000	0.000	0.000
344 GMM182022-23	6.79	6.79	17 02 00	17 02 00	0.000	0	0.000	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182024-25	7.84	7.84	17 02 00	17 02 00	0.000	0	0.000	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182026-27	22.14	21.21	42 23 46	42 23 46	0.018	31 03	3 26 18	27 734	0	0	0	40 10	0.000	40 10	0.000	262 252	3 800	0.000	0.000	0.000	0.000
344 GMM182028-29	34.29	32.12	8 00 35	8 09 33	1 848	31 00	4 384	3 26 18	0	0	9 18	0.000	9 18	0.000	9 18	262 252	3 800	0.000	0.000	0.000	0.000
344 GMM182030-31	23.01	22.04	11 56 29	11 56 29	-0.058	39 04	4 208	3 12 20	0	0	0 00	0.000	0 00	0.000	0 00	283 048	0 000	0.000	0.000	0.000	0.000
344 GMM182032-33	31.07	29.33	8 04 48	8 04 48	0.000	39 04	0.000	0 00 00	0.000	0	0	16 36	0.000	16 36	0.000	282 732	0 000	0.000	0.000	0.000	0.000
344 GMM182034-35	3.91	3.91	15 55 55	15 55 55	0.000	0	0.000	0 00 00	0.000	0	0	59 70	0.000	59 70	0.000	2 728	218 200	21.000	0.000	0.000	0.000
344 GMM182036-37	6.76	6.76	19 40 00	19 40 00	0.000	1 00	0.000	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182038-39	8.78	8.33	19 37 00	19 37 00	0.000	1 00	0.000	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182040-41	6.88	6.88	17 08 00	17 08 00	0.000	0	0.000	0 00 00	0.000	0	0	6 38	0.000	6 38	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182042-43	20.80	19.41	13 20 07	13 20 11	0.018	20 03	2 14 02	23 368	0	0	0 00	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182044-45	30.33	28.67	9 08 58	9 08 41	-0.058	39 04	3 008	2 35 20	0	0	54 04	0.000	54 04	0.000	54 04	262 179	0 000	0.000	0.000	0.000	0.000
344 GMM182046-47	5.92	5.92	1 05 08	1 05 08	0.000	39 04	0.000	1 00 00	0.000	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182048-49	20.60	19.19	13 45 47	13 45 47	0.018	1 00 00	2 274	4 27 48	38 084	0	0	0 00	0.000	0 00	0.000	2 728	0 000	0.000	0.000	0.000	0.000
344 GMM182050-51	25.90	24.35	11 06 54	11 06 54	-0.078	40 01	4 004	1 58 14	17 844	0	0	38 70	0.000	38 70	0.000	270 194	0 000	0.000	0.000	0.000	0.000
344 GMM182052-53	25.14	23.68	11 24 41	11 24 39	-0.048	39 04	4 284	2 44 04	23 368	0	0	26 07	0.000	26 07	0.000	269 668	0 000	0.000	0.000	0.000	0.000
344 GMM182054-55	27.00	16.31	16 32 23	16 32 20	-0.018	6 44 04	49 724	27 00	5 744	0	0	0 00	0.000	0 00	0.000	369 668	0 000	0.000	0.000	0.000	0.000
344 GMM182056-57	27.26	22.88	11 09 51	10 52 17	-1.738	2 00 00	17 314	1 12 40	10 084	0	0	12 36	0.000	12 36	0.000	275 382	0 000	0.000	0.000	0.000	0.000
344 GMM182058-59	27.86	25.48	10 56 26	10 56 17	-0.028	1 00 00	5 594	1 29 40	11 334	0	0	5 00	0.000	5 00	0.000	263 845	0 000	0.000	0.000	0.000	0.000
344 GMM182060-61	26.14	23.84	10 34 23	10 34 23	0.000	1 10 00	10 354	1 46 31	9 984	0	0	42 42	0.000	42 42	0.000	264 884	0 000	0.000	0.000	0.000	0.000
344 GMM182062-63	25.41	22.84	11 12 28	11 03 06	-0.088	1 10 00	10 114	1 41 01	16 624	0	0	1 20 36	0.000	1 20 36	0.000	263 845	0 000	0.000	0.000	0.000	0.000
344 GMM182064-65	29.63	28.08	9 15 34	9 15 34	0.000	1 30 01	5 234	44 00	0 000	0	0	0 00	0.000	0 00	0.000	269 668	0 000	0.000	0.000	0.000	0.000
344 GMM182066-67	31.40	29.63	1 05 04	1 05 06	-0.018	1 30 00	51 674	44 00	0 000	0	0	37 01	0.000	37 01	0.000	275 476	0 000	0.000	0.000	0.000	0.000
344 GMM182068-69	4 39	3 14	1 09 06	1 46 27	53 574	39 00	28 274	0 00 00	0.000	0	0	0 00	0.000	0 00	0.000	5 551	666 847	94 67	0.000	0.000	0.000

Train	Average Speed	Average Delay	Run Time	Simulated	Total	Dwell	Wait on	Wait on	Switch	Train	Total	Origin &	Delay	Ideal	Delay per	Meet	Cumulative	Trail		
	mi/hr	min	min	% of	% of	% of	Schedule	Schedule	% of	Delay	Delay	Run Time	Run Time	Run Time	Train	Miles	Delay	Miles	Miles	
737 W02W02107-08	35.79	38.77	6:51.51	6:59.33	1:07.82	0.05	0.024	10.97	0.194	0	275.933	1:07.82	7.40	275.933	0	2.759	1.87	1574.3	7	1574.3
738 W02W02108-09	36.07	38.97	7:25.23	7:32.42	-0.044	0.66	0.024	9.90	2.168	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
739 W02W02109-10	35.32	38.57	7:45.56	7:45.26	0.004	0.64	0.011	17.30	3.764	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
740 W02W02110-11	38.21	38.30	7:10.14	7:10.12	-0.011	0.04	0.024	10.34	2.949	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
741 W02W02111-12	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
742 W02W02112-13	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
743 W02W02113-14	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
744 W02W02114-15	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
745 W02W02115-16	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
746 W02W02116-17	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
747 W02W02117-18	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
748 W02W02118-19	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
749 W02W02119-20	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
750 W02W02120-21	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
751 W02W02121-22	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
752 W02W02122-23	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
753 W02W02123-24	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
754 W02W02124-25	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
755 W02W02125-26	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
756 W02W02126-27	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
757 W02W02127-28	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
758 W02W02128-29	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
759 W02W02129-30	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
760 W02W02130-31	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
761 W02W02131-32	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
762 W02W02132-33	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
763 W02W02133-34	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
764 W02W02134-35	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
765 W02W02135-36	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
766 W02W02136-37	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
767 W02W02137-38	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
768 W02W02138-39	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
769 W02W02139-40	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
770 W02W02140-41	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
771 W02W02141-42	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
772 W02W02142-43	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
773 W02W02143-44	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
774 W02W02144-45	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
775 W02W02145-46	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
776 W02W02146-47	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
777 W02W02147-48	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
778 W02W02148-49	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
779 W02W02149-50	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
780 W02W02150-51	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
781 W02W02151-52	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
782 W02W02152-53	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
783 W02W02153-54	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
784 W02W02154-55	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
785 W02W02155-56	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
786 W02W02156-57	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
787 W02W02157-58	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
788 W02W02158-59	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
789 W02W02159-60	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0.00	1574.3
790 W02W02160-61	36.42	38.81	7:26.25	7:24.27	0.011	0.05	0.024	20.23	4.578	0	275.933	0.004	0.00	275.933	0	0.002	0.00	0.00	0	



Attachment H

Pittsburgh line statistics only RTC Version 2.60 B1228 07 January 2005 11:14:48

Case Keystone2 Keystone West Rail Capacity Study

Elapsed execution time 1:09:34 (HH:MM:SS)

Simulation start time 8a 00:00 Duration: 9:00:00 (DD HH MM) Warm-up exclusion: 1:00:00 (DD HH MM) Cool-down period: 1:00:00 (DD HH MM)

Net conflicts = 3,986 (768M + 3,218P) Gross conflicts = 8,704 (2,100M + 6,604P) Meet-pass difficulty = 54 (on a scale of 0 to 100) Dispatched trains = 934 (0 failed)

Train type	Run-time Count	Average Speed	Meet-Pass Delay %	Total* Delay	Wait on Schedule	Switch Delay	Stop* Delay	Total* Delay	Run-time Delay	Entry* Delay	Total* Delay	Train Miles	OTP*
Passenger	70	41 239	0.28	2 16 11	5:21	0	0 47 14 20 01	0	14 20 01	0	14 20 01	14682.0	
Premium Intermodal	69	34 415	2.54	1 34	2 02 50	0	11 23 21 08 18	0	14 21 08 32	0.14	21 08 32	17630.8	
Intermodal	133	33 464	2.54	1:05:43	1:15 08	0	14 21 26 22 37	1 21	26 23 59	1.21	26 23 59	21638.8	
Triple Crown	18	34 721	1.91	0:01	9 10	0	3:28 5 21 32	0	5 21 32	0	5 21 32	4914.2	
Multi-Level	24	31 666	2.77	5:04	12:27	0	3 34 6 05:44	0 31	6 05 44	0 31	6 05 44	4438.2	
Automotive parts	6	34 849	1.72	3 00	2 07	0	1 06 38 17:09	0	38 17 09	5 57	38 17 43	25477.2	
General Merchandise	199	27 579	4.32	2 19 34	3 00 50	0	0 46 21 23	0	21 23	0	21 23	150.4	
Foreign Merchandise	10	7 033	4.31	1:13:40	1 19 06	0	13 37 16 21 42	4:26	17 02 09	0 06	17 02 09	10058.5	
Coal	13	29 729	2.14	2:30	1 54 68	0	1 18 2 22 59	0 06	2 23 05	1 46	10 14 47	3148.5	
Local	85	12 443	11 71	1 12 59	3 21 10	5 17	13 04 10 13 01	1 46	10 14 47	0	21 05	553.9	
Mock Train	7	26 256	5 63	5 32	1 04	0 04	0 46 21 05	0	21 05	0	21 05	106544.5	
All train types	756	30 069	3 34	10 14 46	14 10 09	5 22	3 23 28 147 15 20	14:24	148 05:45				

Train Group	Run-time Count	Average Speed	Meet-Pass Delay %	Total* Delay	Wait on Schedule	Switch Delay	Stop* Delay	Total* Delay	Run-time Delay	Entry* Delay	Total* Delay	Train Miles	Delay per 100 Train Miles	OTP*
Passenger	70	41 239	0.28	2 16 11	5:21	0	0 47 14 20 01	0	14 20 01	0	14 20 01	14682.0	0.32	
Trail Van	240	33 770	2.48	1:15 24	4 17 44	0	1 08 24 62 03 21	2 07	62 05 28	0 06	62 05 28	50363.6	9.00	
Freight	446	24 469	4 91	6 07 11	9 11 03	5 22	2 14 16 70 15 59	12 16	71 04 14	14 24	148 05 45	106544.5	5.38	
All groups	756	30 069	3 34	10 14 46	14 10 09	5 22	3 23 28 147 15 20	14 24	148 05 45					

* Dwell times include time spent at initial and final terminals

Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times.

True delay = Total elapsed run time - Ideal (seed or run-time) elapsed run time

True delay includes the acceleration and deceleration associated with conflict resolutions

Stop delay does not have acceleration and deceleration times, it is only the time spent at speed 0.

Meet-Pass Delay % = 100 * True delay / (Total elapsed - True delay - Total dwell - Wait on schedule)

OTP = On-time performance. Trains arriving later than their requested arrival time less a type-specific threshold time are considered late.

All others are on time

Warm-up train count = 91 Cool-down train count = 83 Total number of candidate run-time trains excluded from statistics = 174

Own Keynotes: Keynotes Near Ball Capacity Study, RRC version 3 to LZSE 07 January 2005 13 14 45
 Pittsburgh line train statistics Dwell times include time spent at initial and final terminals Every delay (time held out of network as opposed to origin delay and dwell) included in delay times

Train	Average w/o Dwell	Average w/ Dwell	Average w/ Dwell	Simulated w/ Dwell	Roost w/ Dwell	Dwell w/ Dwell	Walt on w/ Dwell	Switch w/ Dwell	Stops w/ Dwell	Run Time w/ Dwell	Delay w/ Dwell	Daily w/ Dwell	Total w/ Dwell	Delay / 100 Miles	Train Type	
																Walt on w/ Dwell
1 239026-09	45.79	23.10	54.32	15.01	27.714	0.35	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
2 239026-09	45.81	23.11	54.11	15.01	27.714	0.35	2.084	0	0	0.008	0.258	0	29.901	0.446	0.35	AMTRAK
3 239026-10	45.82	23.12	54.10	15.01	27.724	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
4 239026-10	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
5 239026-11	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
6 239026-11	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
7 239026-12	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
8 239026-12	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
9 239026-13	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
10 239026-13	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
11 239026-14	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
12 239026-14	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
13 239026-15	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
14 239026-15	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
15 239026-16	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
16 239026-16	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
17 239026-17	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
18 239026-17	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
19 239026-18	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
20 239026-18	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
21 239026-19	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
22 239026-19	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
23 239026-20	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
24 239026-20	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
25 239026-21	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
26 239026-21	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
27 239026-22	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
28 239026-22	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
29 239026-23	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
30 239026-23	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
31 239026-24	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
32 239026-24	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
33 239026-25	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
34 239026-25	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
35 239026-26	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
36 239026-26	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
37 239026-27	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
38 239026-27	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
39 239026-28	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
40 239026-28	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
41 239026-29	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
42 239026-29	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
43 239026-30	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
44 239026-30	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
45 239026-31	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
46 239026-31	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
47 239026-32	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
48 239026-32	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
49 239026-33	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK
50 239026-33	45.79	23.10	54.12	15.01	27.714	1.37	2.084	0	0	0.008	0.258	0	29.901	0.000	0.00	AMTRAK

Pittsburgh Deall times include time spent at initial and final terminals. Empty delay (time held out of network as opposed to origin delay and dwell) included in delay times. Train statistics

Train	w/o Deall	Average	Total	Stalled	Deall	Wait on	Switch	Scope	Delay	Run Time	DD	RR	PM	SS	Miles	Miles	Delay	Pass	Train Type
384 OMAHANSB-09	10 37	2 43 11	0 01	0 00	0 00	0 00	0 00	0 00	13 04	75 243	0	0	0	0	7 466	1193 857	393 35	General Merchandise	
385 OMAHANSB-10	14 26	5 46 14	0 00	0 00	0 00	0 00	0 00	0 00	13 05	30 234	0	0	0	0	7 466	1193 857	419 47	General Merchandise	
386 OMAHANSB-11	15 01	15 07	0 00	0 00	0 00	0 00	0 00	0 00	13 06	5 004	0	0	0	0	7 466	1193 857	190 00	General Merchandise	
387 OMAHANSB-12	15 01	15 07	0 00	0 00	0 00	0 00	0 00	0 00	13 06	5 004	0	0	0	0	7 466	1193 857	190 00	General Merchandise	
388 OMAHANSB-13	15 01	15 07	0 00	0 00	0 00	0 00	0 00	0 00	13 06	5 004	0	0	0	0	7 466	1193 857	190 00	General Merchandise	
389 OMAHANSB-14	15 01	15 07	0 00	0 00	0 00	0 00	0 00	0 00	13 06	5 004	0	0	0	0	7 466	1193 857	190 00	General Merchandise	
400 OMAHANSB-15	17 53	17 53	1 00	0 00	0 00	0 00	0 00	0 00	14 56	12 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
401 OMAHANSB-16	20 44	19 37	1 00	0 00	0 00	0 00	0 00	0 00	14 56	12 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
402 OMAHANSB-17	18 74	15 14	0 00	0 00	0 00	0 00	0 00	0 00	15 00	2 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
403 OMAHANSB-18	18 74	15 14	0 00	0 00	0 00	0 00	0 00	0 00	15 00	2 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
404 OMAHANSB-19	9 41	9 41	1 00	0 00	0 00	0 00	0 00	0 00	15 54	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
405 OMAHANSB-20	9 41	9 41	1 00	0 00	0 00	0 00	0 00	0 00	15 54	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
406 OMAHANSB-21	13 26	13 26	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
407 OMAHANSB-22	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
408 OMAHANSB-23	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
409 OMAHANSB-24	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
410 OMAHANSB-25	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
411 OMAHANSB-26	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
412 OMAHANSB-27	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
413 OMAHANSB-28	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
414 OMAHANSB-29	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
415 OMAHANSB-30	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
416 OMAHANSB-31	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
417 OMAHANSB-32	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
418 OMAHANSB-33	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
419 OMAHANSB-34	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
420 OMAHANSB-35	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
421 OMAHANSB-36	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
422 OMAHANSB-37	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
423 OMAHANSB-38	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
424 OMAHANSB-39	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
425 OMAHANSB-40	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
426 OMAHANSB-41	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
427 OMAHANSB-42	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
428 OMAHANSB-43	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
429 OMAHANSB-44	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
430 OMAHANSB-45	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
431 OMAHANSB-46	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
432 OMAHANSB-47	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
433 OMAHANSB-48	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
434 OMAHANSB-49	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
435 OMAHANSB-50	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
436 OMAHANSB-51	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
437 OMAHANSB-52	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
438 OMAHANSB-53	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
439 OMAHANSB-54	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
440 OMAHANSB-55	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	
441 OMAHANSB-56	16 30	15 44	0 00	0 00	0 00	0 00	0 00	0 00	16 00	0 004	0	0	0	0	6 436	0 000	0 00	General Merchandise	

Origin delay (time held out of network as opposed to origin delay and dwell) included in delay times
Pittsburgh dwell times include time spent at initial and final terminals

Table with columns: Train, Average w/o dwell, Simulated, Total, Run Time, Delay, Hold, Train Type, Train Statistics. Rows include train IDs like 443, 444, 445, etc., and their corresponding performance metrics.

Train Type	Run-time		Average		Meet-Pass		Total*		Wait on		Switch		Stop*		Total		Entry*		Total		Train			
	Count	Speed	Count	Delay	Count	Dwell	Count	Delay	Count	Schedule	Count	Delay	Count	Run time	Count	Delay	Count	Run time	Count	Delay	Count	Elapsed	Miles	
					DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM
Intermodal	38	19 798	12 01	0:30	3:08	0	2 49	1 05 57	0 00	1 05 58	593 1	0 00	1 05 58	0 00	1 05 58	1264 3	2 20 23	17 08	281 0	6:30	202 9	1377 8	772 0	4666 9
Multi-level	18	16 787	5 14	4:30	0:24	0	0 35	16 44	0 24	17 08	281 0	0 06	6 30	0 00	6 30	93 7	0 00	6 30	0 00	6 30	202 9	1377 8	772 0	4666 9
Automotive parts	6	14 400	2 96	3 00	0 00	0	0 06	6 30	0 00	6 30	93 7	0 00	6 30	0 00	6 30	202 9	0 00	6 30	0 00	6 30	1377 8	772 0	4666 9	4666 9
General Merchandise	13	12 245	19 72	6 30	0 09	0	1 37	16 34	0 00	16 34	202 9	0 00	16 34	0 00	16 34	1377 8	0 00	16 34	0 00	16 34	772 0	4666 9	4666 9	
Coal	99	14 513	14 73	1 06 32	4 50	0 38	7 59	3 22 55	2 43	4 01 39	1377 8	0 06	4 01 39	0 06	4 01 39	772 0	0 06	4 01 39	0 06	4 01 39	1377 8	772 0	4666 9	
Milk	45	18 039	6 61	0:30	0:35	0	0 13	4 30	0 00	4 30	772 0	0 00	4 30	0 00	4 30	1377 8	0 00	4 30	0 00	4 30	772 0	4666 9	4666 9	
Other	4	11 022	18 39	4:04	2:30	0	2 30	2 22 03	0 00	2 22 03	772 0	0 00	2 22 03	0 00	2 22 03	1377 8	0 00	2 22 03	0 00	2 22 03	772 0	4666 9	4666 9	
All train types	303	15 200	10 55	2 21 53	1 07 08	3 08	20 01	12 19 01	3 57	12 22 58	4666 9	3 57	12 22 58	4666 9	12 22 58	4666 9	3 57	12 22 58	4666 9	12 22 58	4666 9	25 75	25 75	4666 9

Train Group	Run-time		Average		Meet-Pass		Total*		Wait on		Switch		Stop*		Total		Entry*		Total		Train			
	Count	Speed	Count	Delay	Count	Dwell	Count	Delay	Count	Schedule	Count	Delay	Count	Run time	Count	Delay	Count	Run time	Count	Delay	Count	Elapsed	Miles	
					DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	DD HH MM	
Trail Van	143	18 452	7 35	18 15	8 37	0	6 30	5 00 57	1 02	5 02 00	2332 1	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 50
Freight	160	13 086	13 35	2 03 37	22 30	3 08	13 31	7 18 03	2 55	7 20 58	2434 8	33 32	33 32	33 32	33 32	33 32	33 32	33 32	33 32	33 32	33 32	33 32	33 32	33 32
All groups	303	15 200	10 55	2 21 53	1 07 08	3 08	20 01	12 19 01	3 57	12 22 58	4666 9	25 75	25 75	25 75	25 75	25 75	25 75	25 75	25 75	25 75	25 75	25 75	25 75	25 75

* Dwell times include time spent at initial and final terminals.
 Entry delay (time held out of network as opposed to origin delay and dwell) included in delay times
 True delay = Total elapsed run time - Ideal (speed or run-time) elapsed run time.
 True delay includes the acceleration and deceleration associated with conflict resolutions
 Stop delay does not have acceleration and deceleration time, it is only the time spent at speed 0.
 Meet-Pass Delay % = 100 * True delay / (Total elapsed - True delay - Total dwell - Wait on schedule)
 OTP = On-time performance Trains arriving later than their requested arrival time less a type-specific threshold time are considered late
 All others are on time
 Warm-up train count = 91 Cool-down train count = 83 Total number of candidate run-time trains excluded from statistics = 174

Train type	Run-time		Average		Meet-Pass		Total*		Wait on		Switch		Stop*		Total		Entry*		Total		Train		
	Count	with Dwell	Speed	Average	Delay*	Dwell	Schedule	Delay	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	Miles	OTF*
Premium Intermodal	38	13,102	1.47	0.30	0.02	0.08	0.06	0.11	0.03	0.27	0.15	0.08	0.06	0.11	0.03	0.27	0.15	0.08	0.06	0.11	8.16	108 3	----
Intermodal	81	8,409	1.08	10.15	0.08	0.08	0.08	0.11	1.03	0.27	0.15	0.08	0.06	0.11	0.03	0.27	0.15	0.08	0.06	0.11	1.04	230 9	----
Multi-level	18	5,998	3.76	4.30	0.02	0.02	0.02	0.09	8.33	0.24	0.09	0.02	0.09	8.33	0.24	0.09	0.02	0.09	8.33	0.24	8.57	51 3	----
Automotive parts	6	4,026	0.40	3.00	0.00	0.00	0.00	0.00	4.14	0.00	0.00	0.00	0.00	4.14	0.00	0.00	0.00	4.14	0.00	4.14	17 1	----	
General Merchandise	13	3,965	2.68	6.30	0.00	0.00	0.00	0.04	9.20	0.00	0.04	0.00	0.04	9.20	0.00	0.04	0.00	9.20	0.00	9.20	37.1	----	
Coal	22	5,323	3.97	7.31	0.00	0.00	0.00	0.13	11.46	0.00	0.13	0.00	0.13	11.46	0.00	0.13	0.00	11.46	0.00	11.46	62.7	----	
Other	4	16,202	10.00	2.30	0.00	0.00	0.00	0.10	3.12	0.00	0.10	0.00	0.10	3.12	0.00	0.10	0.00	3.12	0.00	3.12	11.4	----	
Total	185	7,169	2.31	1.10	0.46	0.13	0.00	0.56	3.01	0.32	0.56	0.13	0.56	3.01	0.32	0.56	0.13	3.01	0.32	3.01	527.3	----	

Train Group	Run-time		Average		Meet-Pass		Total*		Wait on		Switch		Stop*		Total		Entry*		Total		Train		
	Count	with Dwell	Speed	Average	Delay*	Dwell	Schedule	Delay	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	DD HH:MM	Miles	OTF*
Total Van	143	8,400	1.52	18.15	0.13	0.13	0.13	0.27	2.00	0.31	0.27	0.31	0.27	2.00	0.31	0.27	0.31	2.00	0.31	0.27	407.6	6.84	----
Freight	42	4,782	4.75	16.31	0.00	0.00	0.00	0.28	1:01:01	1.48	1:02:50	1.48	1:02:50	1.48	1:02:50	1.48	1:02:50	1.48	1:02:50	1.48	119.7	23.49	----
All groups	185	7,169	2.31	1.10	0.46	0.13	0.00	0.56	3.01	0.32	0.56	0.13	0.56	3.01	0.32	0.56	0.13	3.01	0.32	3.01	527.3	10.62	----

* Dwell times include time spent at initial and final terminals
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 True delay = Total elapsed run time - Ideal (seed or run-time) elapsed run time
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 Stop delay does not have acceleration and deceleration time, it is only the time spent at speed 0.
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