

Market/Octavia Appendix Transit A

Introduction

This section is a detailed, line-by-line analysis of transit performance in the Market/Octavia Study Area. For a summary of the methodology and conclusions, see Chapter 4 of the main report.

Line 6-Parnassus, westbound [outbound]

This line runs west along Haight Street, before turning southwest at Masonic. It runs along Parnassus, past the University of California San Francisco, and turns south along 9th Avenue through the inner Sunset, terminating just south of Golden Gate Heights Park. The pointcheck was located on Haight at Laguna.

In the morning peak, scheduled headways were 10 minutes until 9:53 AM, before falling to 11-13 minutes. Actual headways varied from 1 to 26 minutes, largely due to bunching. The 26 minute headway, the longest, occurred between 8:48 AM and 9:14 AM, but this did not lead to a discernable difference in loads. Overall, 40% of trips were on time, 40% early and 20% late.

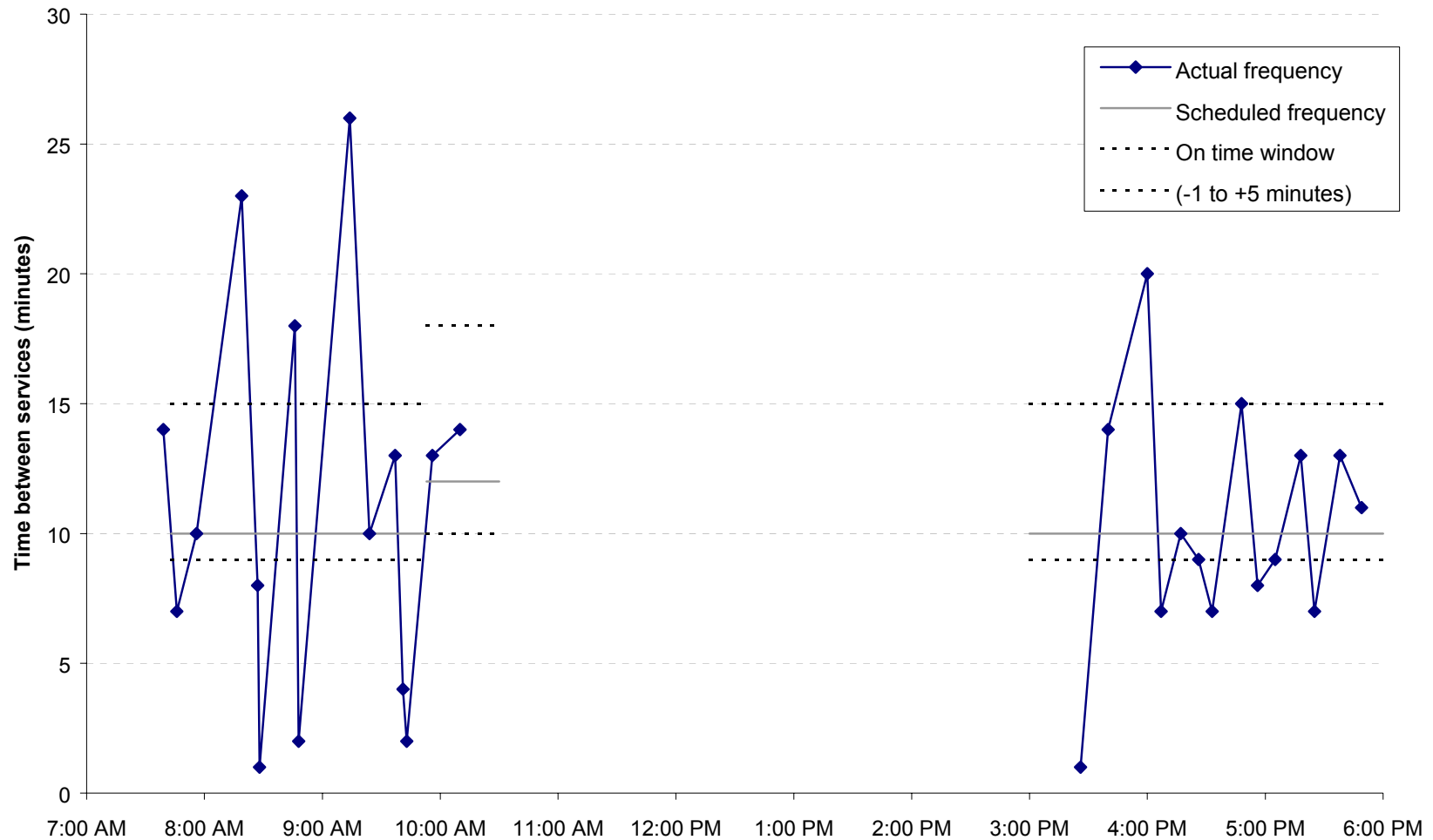
In the afternoon peak, scheduled headways were 10 minutes. With the exception of one trip that arrived after a 20 minute gap, at 4 PM, all trips were on time or early. Bunching of services was far less pronounced than in the morning peak.

Few passengers boarded or alighted at this location. The average number boarding was 1.3 in the morning peak and 0.4 in the afternoon peak. The average number alighting was 0.9 in the morning and 1.0 in the afternoon.

Average loads were 13.0 passengers in the morning and 22.3 in the afternoon. The maximum load observed all day was 38 passengers, well within Muni's maximum load standard of 63 passengers for the 40' trolley coaches used on this line.

According to Muni data, the maximum load point in the morning (7 AM to 9 AM) is on arrival at Haight and Masonic, with an average load of 14.5 passengers. In the afternoon (4 PM to 6 PM) it is at Market and Van Ness, with an average load of 41.6 passengers. All these loads are well within Muni's maximum load standards.

Figure 1 Service frequency. 6-Parnassus westbound



Line 6-Parnassus, eastbound [inbound]

This line runs along Haight and Page to Franklin, and then along Market to the Ferry Building. It follows the same route as the 7-Haight, 66-Quintara and 71(L) Haight-Noriega lines. The pointcheck was located on Laguna at Haight.

In the morning peak, scheduled headways were 10 minutes until 9:33 AM, before dropping to 12 minutes. Actual headways varied from 0 to 22 minutes, largely due to bunching. The 22 minute headway, the longest, occurred between 9:45 AM and 10:07 AM, but this did not lead to a discernable difference in loads. Forty-four per cent of trips were on time, 39% early and 17% late.

In the afternoon peak, scheduled headways were 10 minutes. Actual headways were more even than in the morning, and until 5:06 PM, all trips were on time or early. Subsequently, two trips were late, arriving at 5:26 PM after 20 minutes, and at 6 PM after 18 minutes. There was no discernable increase in passenger loads on these late trips.

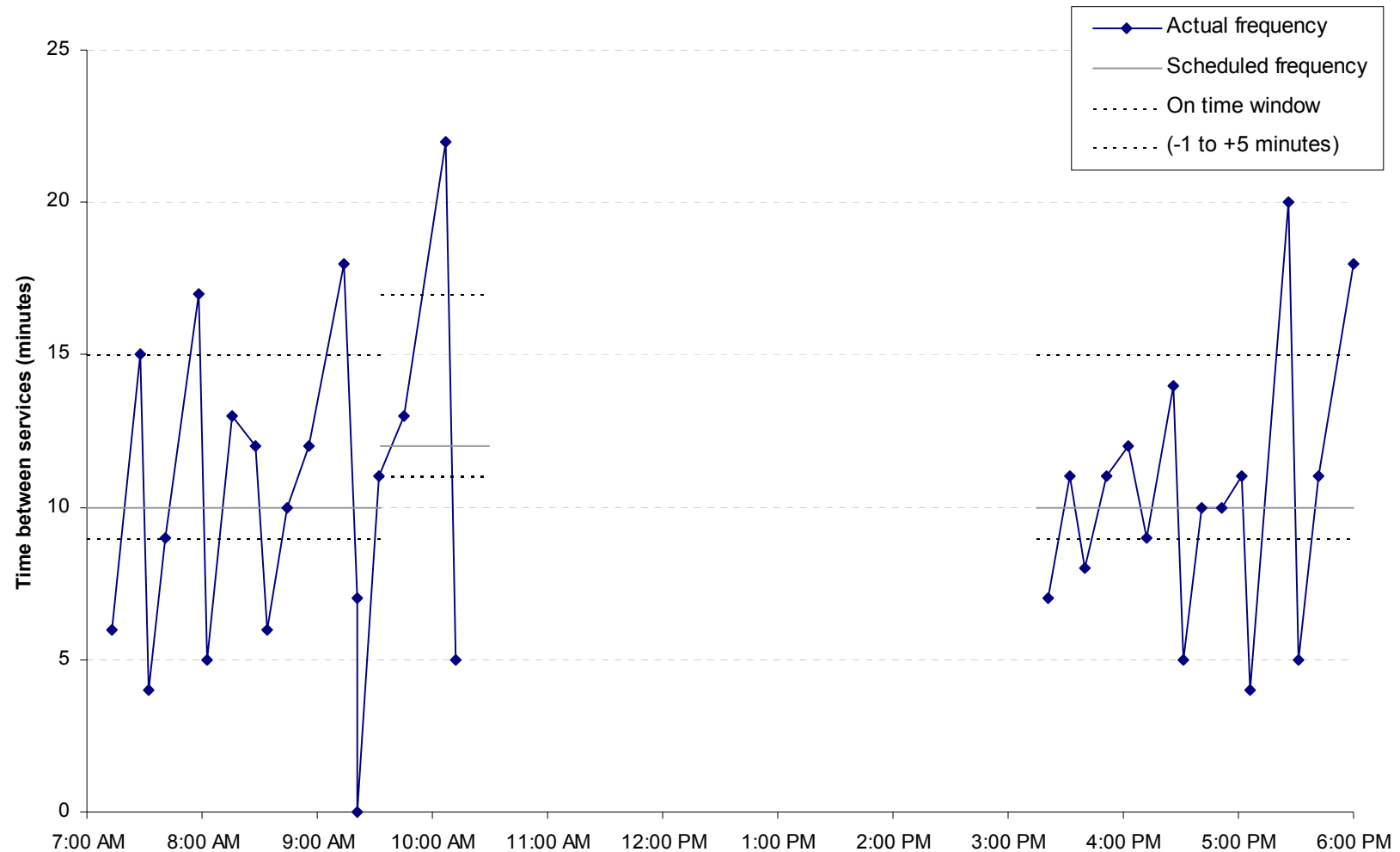
Few passengers boarded or alighted at this location. Boardings were highest in the morning peak, averaging 1.4. Alightings were highest in the afternoon peak, averaging 0.6.

In the morning peak, the average load was 42.6 passengers. Loadings on five trips, all between 7:58 AM and 8:44 AM, exceeded Muni's maximum load standard of 63 passengers for the 40' trolley coaches used on this line. The maximum load, of 81 passengers, occurred at 8:16 AM.

In the afternoon peak, loads were far lower. The average load was 12.7 passengers, and the maximum 21.

According to Muni data, the maximum load point is at Market and 1st in the early morning (5-7 AM), with an average load of 21.6 passengers. In the afternoon (4-6 PM), it is at Haight and Masonic, with an average load of 24.7.

Figure 2 Service frequency. 6-Parnassus eastbound



Line 7-Haight, westbound [outbound]

This line runs along Haight Street, terminating at Haight and Stanyan. The pointcheck was located on Haight at Laguna.

In the morning peak, trips were scheduled every 10 minutes until 9:57 AM, and subsequently every 12 minutes. All trips were on time or early, with the exception of two that were late by a margin of only one minute.

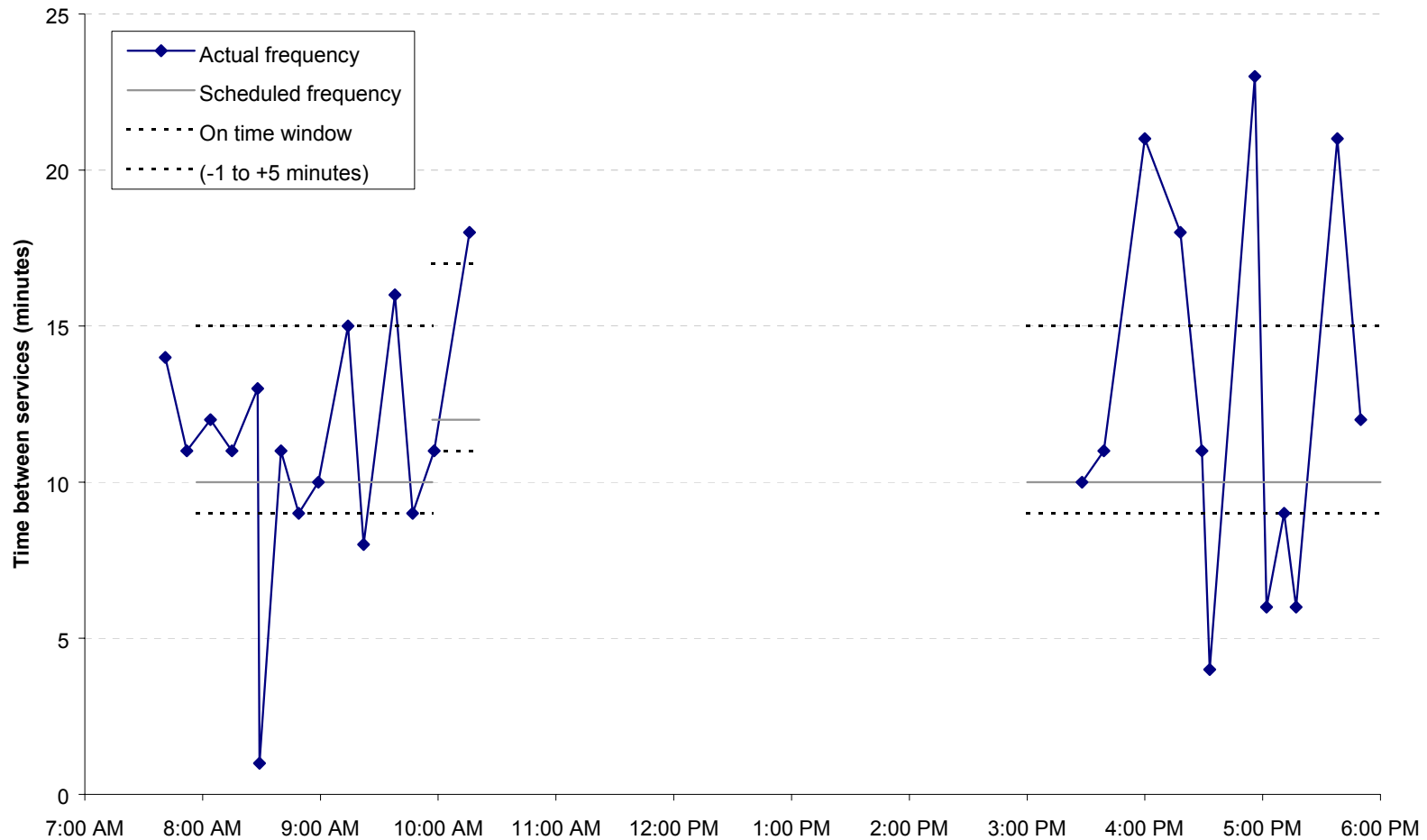
In the afternoon peak, trips were scheduled every 10 minutes. Actual headways were far more irregular than in the morning. Overall, 42% of trips were on time, 25% early and 33% late. There were three gaps of 21-23 minutes, leading up to 4 PM, 4:56 PM and 5:38 PM, although loads did not increase markedly on these late trips.

Few passengers boarded or alighted at this location. In the morning peak, an average of 0.6 boarded and 1.5 alighted. In the afternoon peak, an average of 0.4 boarded and 0.9 alighted.

Loads were also low, with the maximum observed in either peak being 35 passengers, well within Muni's maximum load standard of 63 passengers for the 40' trolley coaches used on this line. Average loads were 9.2 passengers in the morning peak and 18.9 passengers in the afternoon peak.

According to Muni data, the maximum load point in the morning (7-9 AM) is on arrival at Haight and Masonic, with an average load of 7.6. In the afternoon (6-7 PM), it is at Market and Van Ness, with an average load of 43.3. All these figures are well within Muni maximum load standards.

Figure 3 Service frequency. 7-Haight westbound



Line 7-Haight, eastbound [inbound]

This line runs along Haight and Page to Franklin, and then along Market to the Ferry Building. It follows the same route as the 6-Parnassus, 66-Quintara and 71(L) Haight-Noriega lines. The pointcheck was located on Laguna at Haight.

In the morning peak, scheduled headways were 10 minutes until 9:37 AM, before falling to 12 minutes. This schedule was maintained in practice, with all trips on time or early and arriving within a narrow 6-13 minute window.

In the afternoon peak, scheduled headways were 10 minutes. There was one long gap of 40 minutes, between 3:22 PM and 4:02 PM, although this did not lead to any increase in passenger loads. Otherwise, only one trip was late, and that by a margin of only one minute. Overall, 43% of trips were on time, 43% early and 14% late.

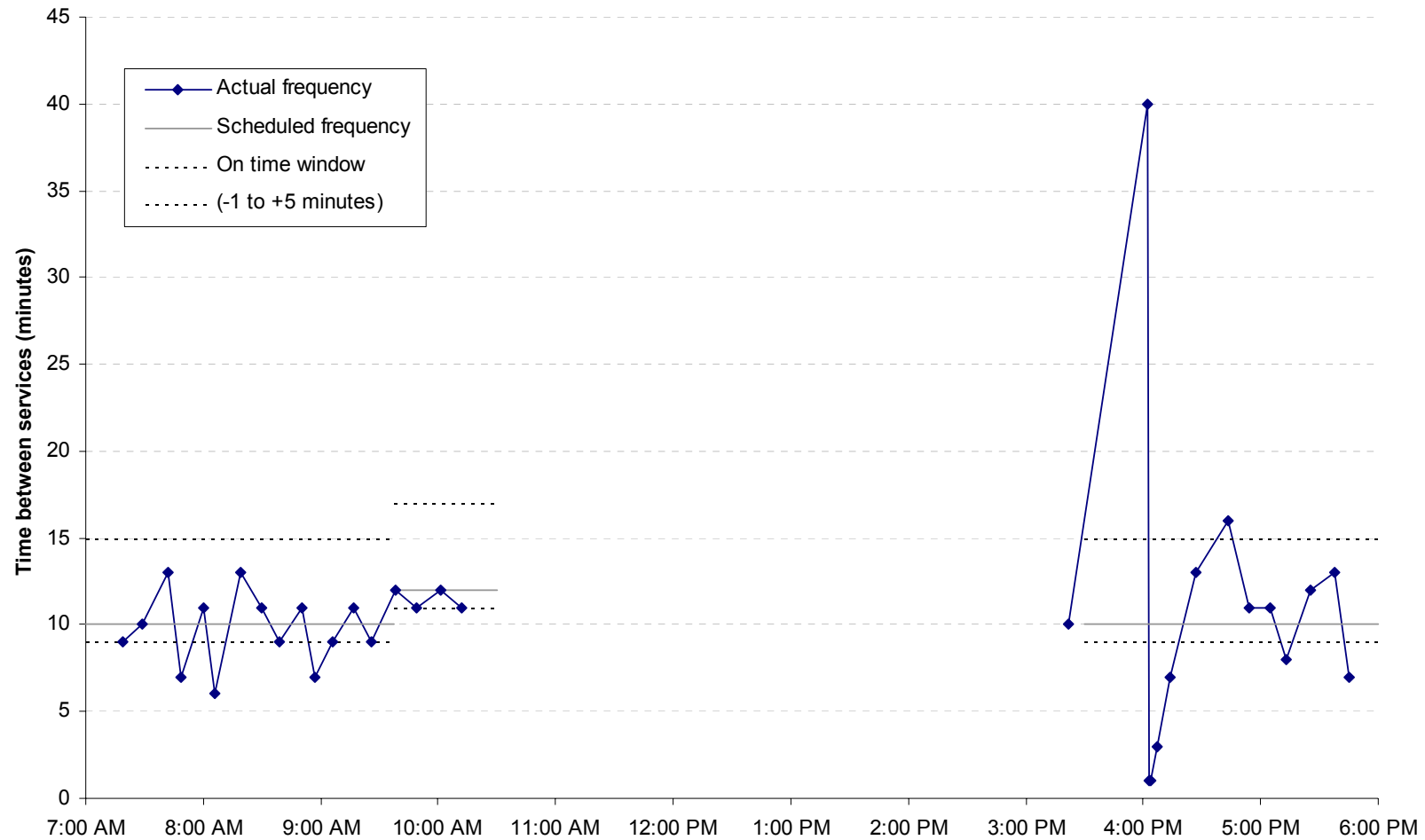
Few passengers boarded or alighted at this location. In the morning peak, an average of 0.9 boarded and 0.2 alighted. In the afternoon peak, an average of 0.4 boarded and 0.4 alighted.

The average load in the morning peak was 45.6 passengers. Loads on 6 trips, all between 8 AM and 8:57 AM, exceeded Muni's maximum load standard of 63 passengers for the 40' trolley coaches used on this line. The maximum load, of 78 passengers, occurred at 8:39 AM,

In the afternoon peak, loads were far lower. The average load was 10.6, and the maximum 27.

According to Muni data, the maximum load point in the morning (7-9 AM) is at Market and 1st, with an average load of 53.9. In the afternoon (6-7 PM), it is at Haight and Masonic, with an average load of 16.7.

Figure 4 Service frequency. 7-Haight eastbound



Line 66-Quintara, westbound [outbound]

This line runs along Haight to Stanyan, and then along Parnassus, 15th Avenue, Quintara and 30th Avenue to 30th and Vicente. In this direction, service from downtown along Haight Street only operates in the afternoon peak (4:24 PM to 5:44 PM). At other times, the line only runs between 9th Avenue and Judah and 30th and Vicente. The pointcheck was located on Haight at Laguna.

Scheduled headways were every 24 minutes. This schedule was maintained in practice, and all trips were on time or early with headways of 8-26 minutes. However, the first trip arrived at 5:01 PM, more than 30 minutes later than scheduled.

As only four trips were observed, no service frequency chart is provided for this line.

An average of 6.3 passengers boarded and 1.3 alighted each trip. The average load was 39.3, and the maximum load 55. This was within the Muni maximum load standard for the 40' coaches (63 passengers), but not the 30' coaches (45 passengers) that are also used on this line.

According to Muni, the maximum load point is at 9th Avenue and Judah between 6 and 7 PM, with an average load of 12.0.

Line 66-Quintara, eastbound [inbound]

This line runs along Haight and Page to Franklin, and then along Market to the Ferry Building. It follows the same route as the 6-Parnassus, 7-Haight and 71(L) Haight-Noriega lines. In this direction, service along Haight Street to downtown only operates in the morning peak (6:09 AM to 8:18 AM). At other times, the line only runs between 30th and Vicente and 9th and Judah. The pointcheck was located on Laguna at Haight.

Scheduled headways were every 18 minutes. This schedule was maintained in practice and all trips arrived on time, with headways of 19-23 minutes.

As only four trips were observed, no service frequency chart is provided for this line.

An average of 1.5 passengers boarded and 0.5 alighted each trip. The average load was 42.5, and the maximum 80 - breaching Muni's maximum load standard for both the 40' coaches (63 passengers) and 30' coaches (45 passengers) used on this line.

According to Muni, the maximum load point is on arrival at Market and South Van Ness, between 7 and 9 AM, with an average load of 42.8.

Line 71(L)-Haight/Noriega, westbound [outbound]

This line runs along Haight to Stanyan, and then along Lincoln, 23rd Avenue and Noriega to Ocean Beach. At the height of the afternoon peak (4:20 PM to 6:32 PM), the line operates as the limited stop 71L. The pointcheck was located on Haight at Laguna.

In the morning peak, scheduled headways were 9-11 minutes. Fifty-four per cent of trips were on time, 23% early and 23% late. There were three gaps of 26-28 minutes, leading up to 8:08 AM, 8:56 AM and 10:15 AM. While loads on these delayed services were above average, the maximum load all morning was 28 passengers, well within Muni's standard for overcrowding.

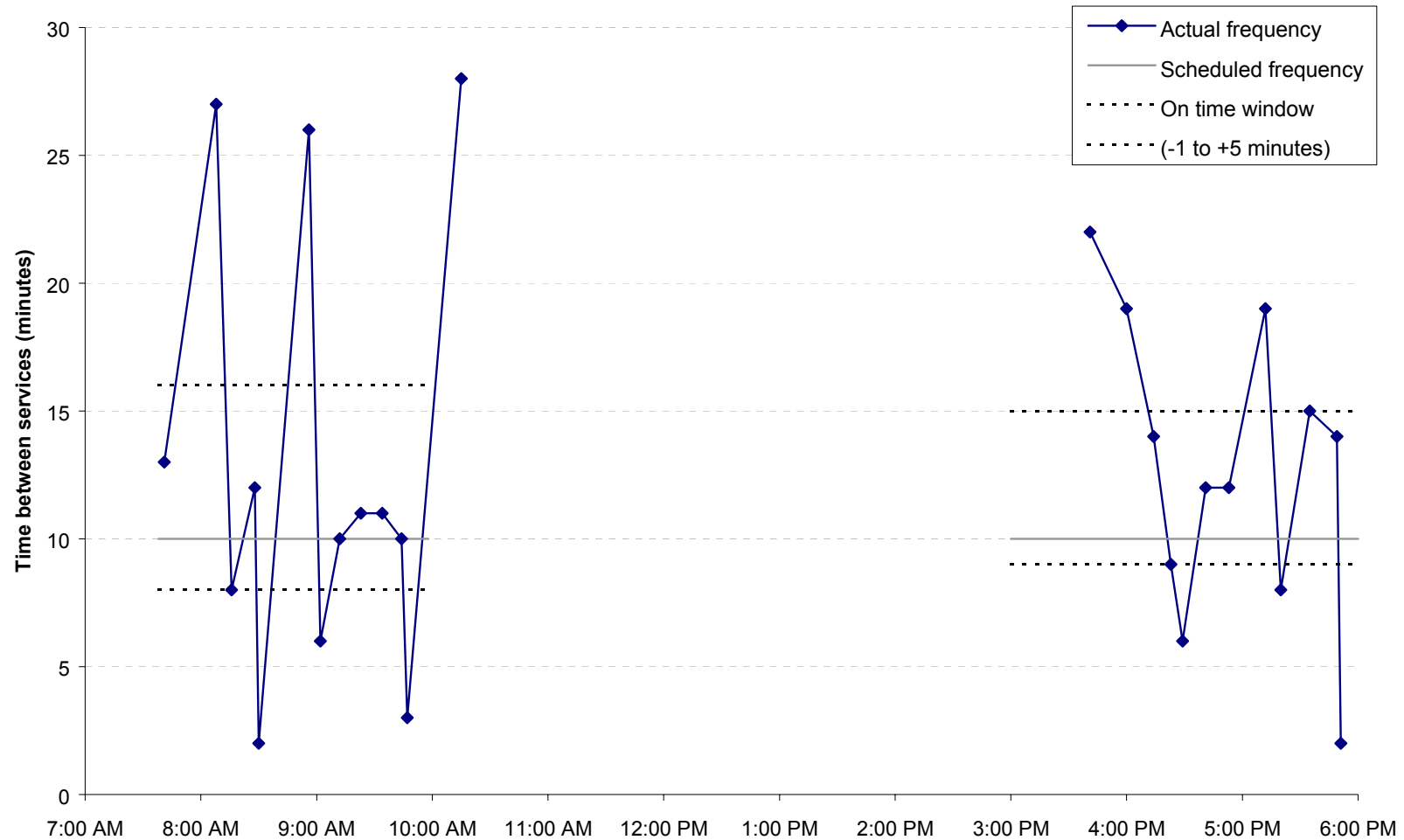
In the afternoon peak, scheduled headways were 10 minutes. Half of trips were on time, 25% early and 25% late. The maximum gap between trips was 22 minutes, between 3:19 PM and 3:41 PM. although this did not appear to result in an increased load on the delayed trip.

Few passengers boarded or alighted at this location. In the morning peak, an average of 0.2 boarded and 0.9 alighted each trip. In the afternoon peak, an average of 0.4 boarded and 1.9 alighted.

Average loads were 14.9 passengers in the morning and 33.9 in the afternoon, well within Muni's maximum load standard of 63 passengers for the 40' coaches used on this line. While two trips in the afternoon peak carried loads of 60 passengers each, these loads were just within Muni's maximum load standards.

According to Muni data, the maximum load point in the morning (7-9 AM) is on arrival at Haight and Masonic, with an average load of 15.4. In the afternoon (4-6 PM), it is at Market and Van Ness, with an average load of 54.1. These load are within the Muni maximum load standard of 63.

Figure 5 Service frequency. 71(L)-Haight/Noriega westbound



Line 71(L)-Haight/Noriega, eastbound [inbound]

This line runs along Haight and Page to Franklin, and then along Market to the Ferry Building. It follows the same route as the 6-Parnassus, 7-Haight and 66-Quintara lines. At the height of the morning peak, between 7:10 AM and 8:50 AM, the line operates as the limited stop 71L. The pointcheck was located on Laguna at Haight.

In the morning peak, scheduled headways were 8-11 minutes. Fifty-three per cent of trips were on time, 27% early and 20% late. The longest gap between trips was 24 minutes, between 8:02 AM and 8:26 AM. Loads on the subsequent two services (73 and 74 passengers) were well in excess of the Muni maximum load standard of 63 for the 40' coaches used on this line.

In the afternoon peak, scheduled headways were 10 minutes until 5:07 PM, and subsequently 10-13 minutes. With the exception of two trips, which arrived at 3:35 PM and 4:20 PM after gaps of 18 and 21 minutes respectively, all trips were on time or early. There was no marked increase in loads on these delayed trips.

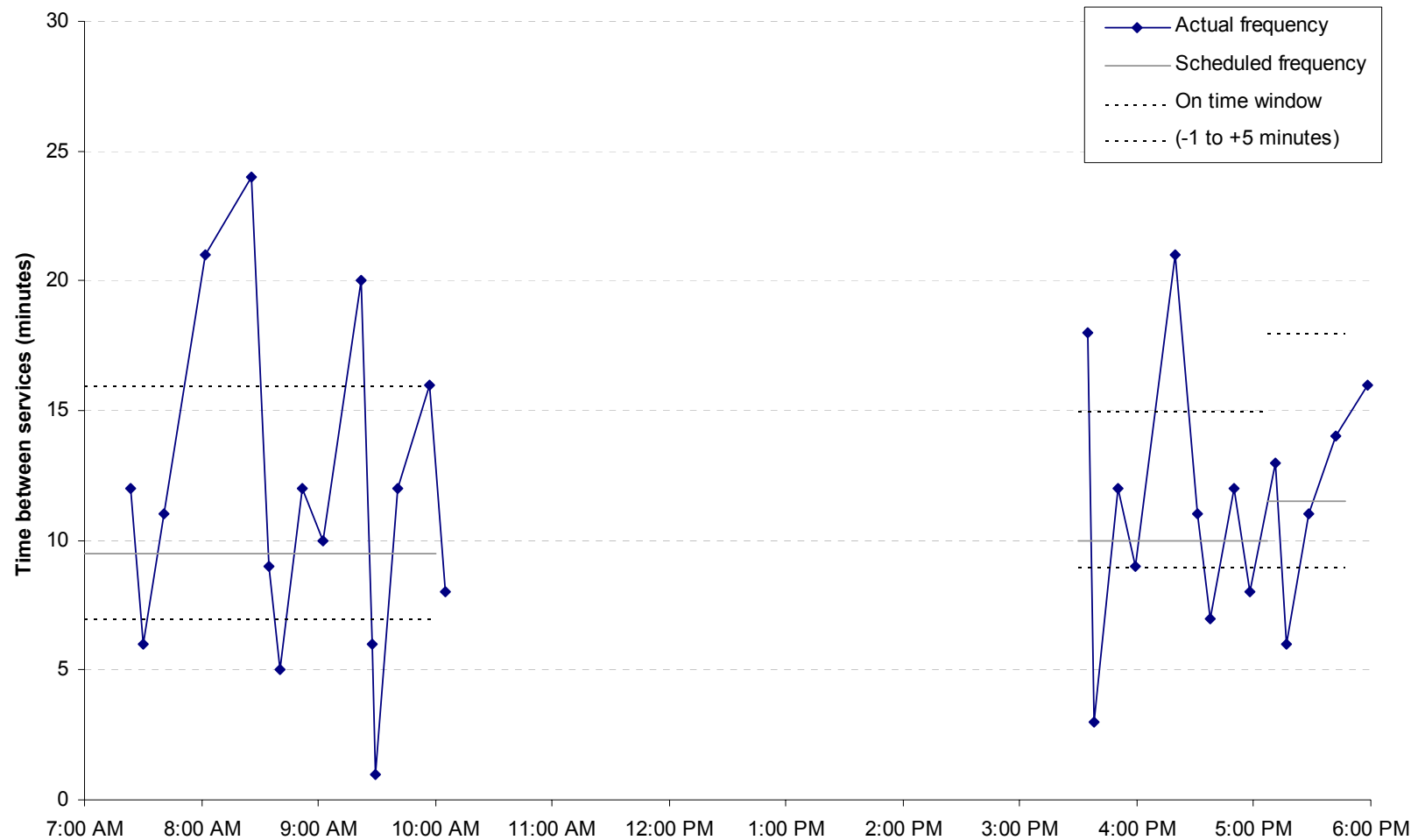
Few passengers boarded or alighted at this location. An average of 0.5-0.6 passengers boarded and alighted on each trip in both morning and afternoon peaks.

The average load in the morning peak was 48.9, within the Muni maximum load standard of 63. However, four trips carried loads in excess of this standard, with a maximum load of 74 at 8:35 AM.

In the afternoon peak, the average load was 22.6, and the maximum load 34 passengers.

According to Muni data, the maximum load point in the morning (7-9 AM) is on arrival at Market and 1st, with an average load of 56.8. In the afternoon (2-4 PM), it is at Haight and Masonic, with an average load of 35.4.

Figure 6 Service frequency. 71(L)-Haight/Noriega eastbound



Summary of Haight Street lines

The 6-Parnassus, 7-Haight, 66-Quintara and 71(L) Haight/Noriega lines follow the same route between downtown and Haight and Masonic. In many cases, passengers will be indifferent as to which line they use. It is therefore useful to look at the pattern of headways and passenger loads for all lines together. For example, while there may be a long gap between trips on one line, if other lines arrive in the interim, the delay is less of an issue.

As Figures 11 and 12 show, headways were more even than for the lines taken individually. However, there was significant bunching of trips, particularly for westbound lines, with many trips arriving simultaneously.

For westbound lines, the maximum gap in the morning peak was 12 minutes, between 9:58 AM and 10:10 AM. In the afternoon peak, the maximum gap was 19 minutes, between 3:41 PM and 4 PM. Considering the 6-Parnassus, 7-Haight and 71(L)-Haight/Noriega lines were all operating to 10 minute scheduled headways at this time, this was a significant delay.

For eastbound lines, the maximum gap in the morning peak was 10 minutes, leading up to 8:16 AM. The subsequent trip was highly overcrowded, carrying a load of 81 passengers. Many passengers were presumably unable to board, and were forced to wait for the subsequent trip 3 minutes later (which was also overcrowded with a load of 75), or the next trip after a further 5 minutes.

In the afternoon peak, the maximum gap was 13 minutes, leading up to 5:58 PM, although this did not lead to any marked increased in loads.

Regarding boardings and alightings, few passengers boarded or alighted from any line at Haight and Laguna. It appeared that most of these lived in the immediate area.

Loads were high on inbound services in the morning peak, and Muni maximum load standards were exceeded on individual trips on all lines. To a lesser extent, loads were high on outbound services in the afternoon peak, but Muni maximum load standards were not exceeded on any trip.

Figure 7 Service frequency. All westbound Haight Street lines

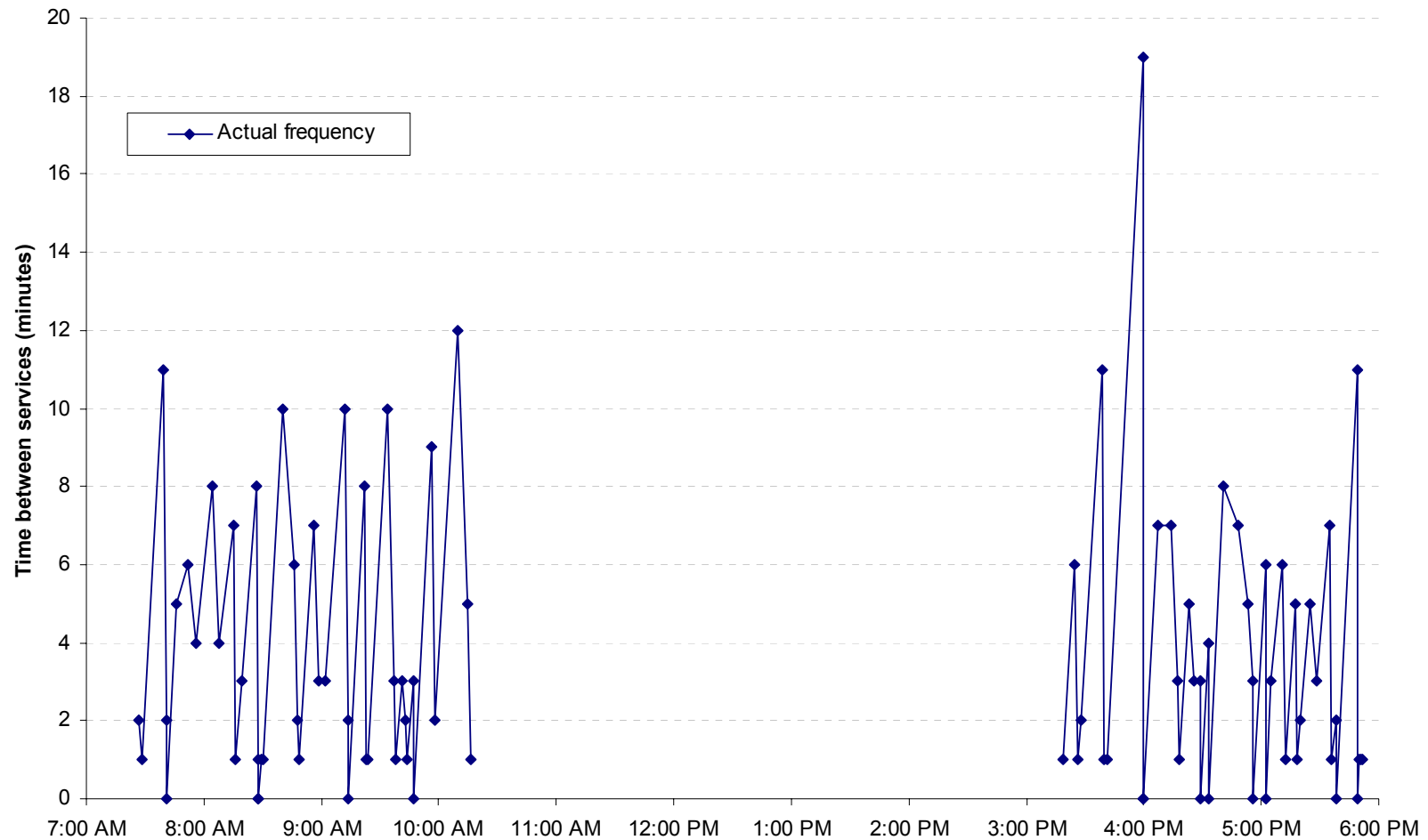
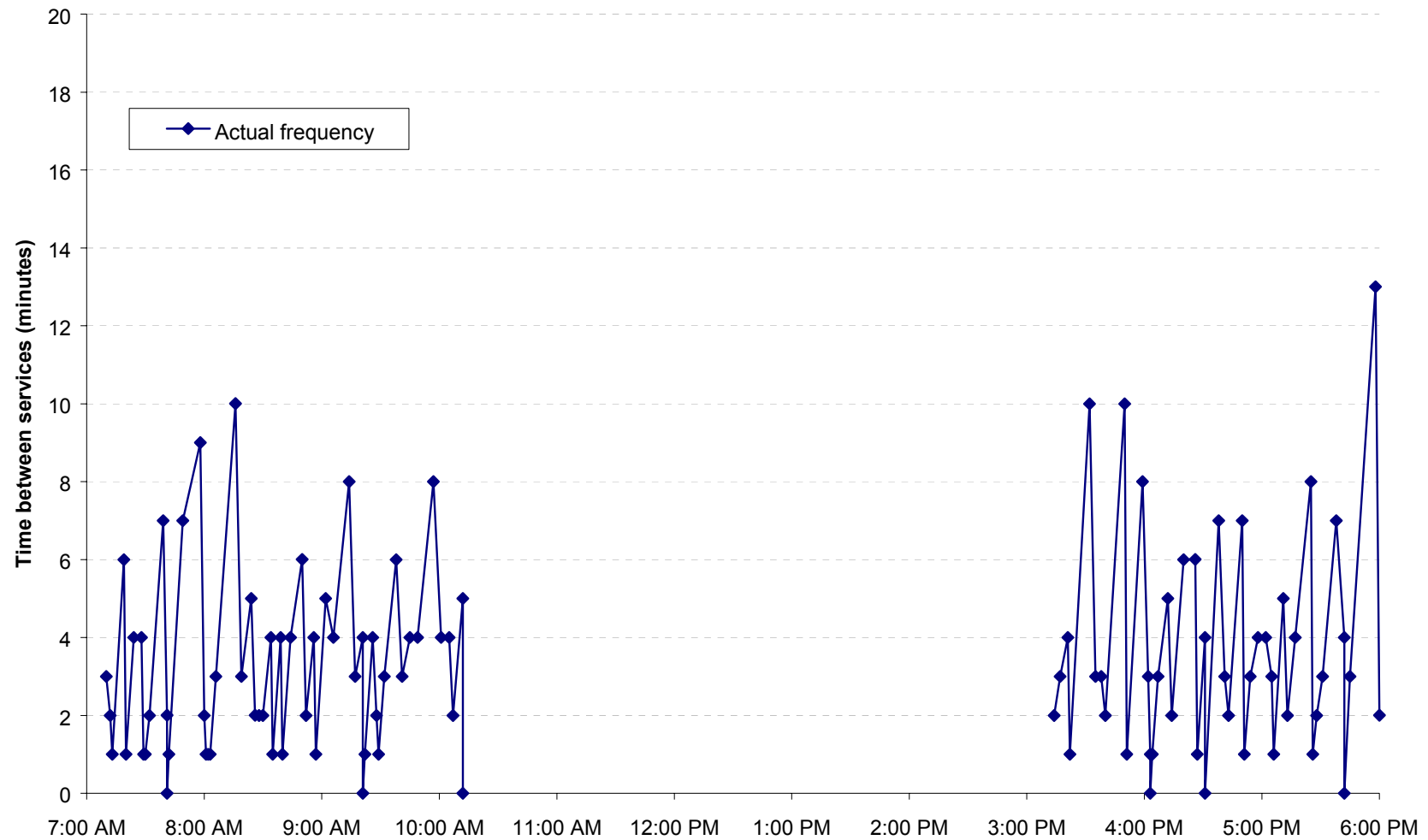


Figure 8 Service frequency. All eastbound Haight Street lines



Line 22-Fillmore, northbound [inbound]

This line runs north along Church and then Fillmore, to the Marina. The pointcheck was located on Church, just south of Market.

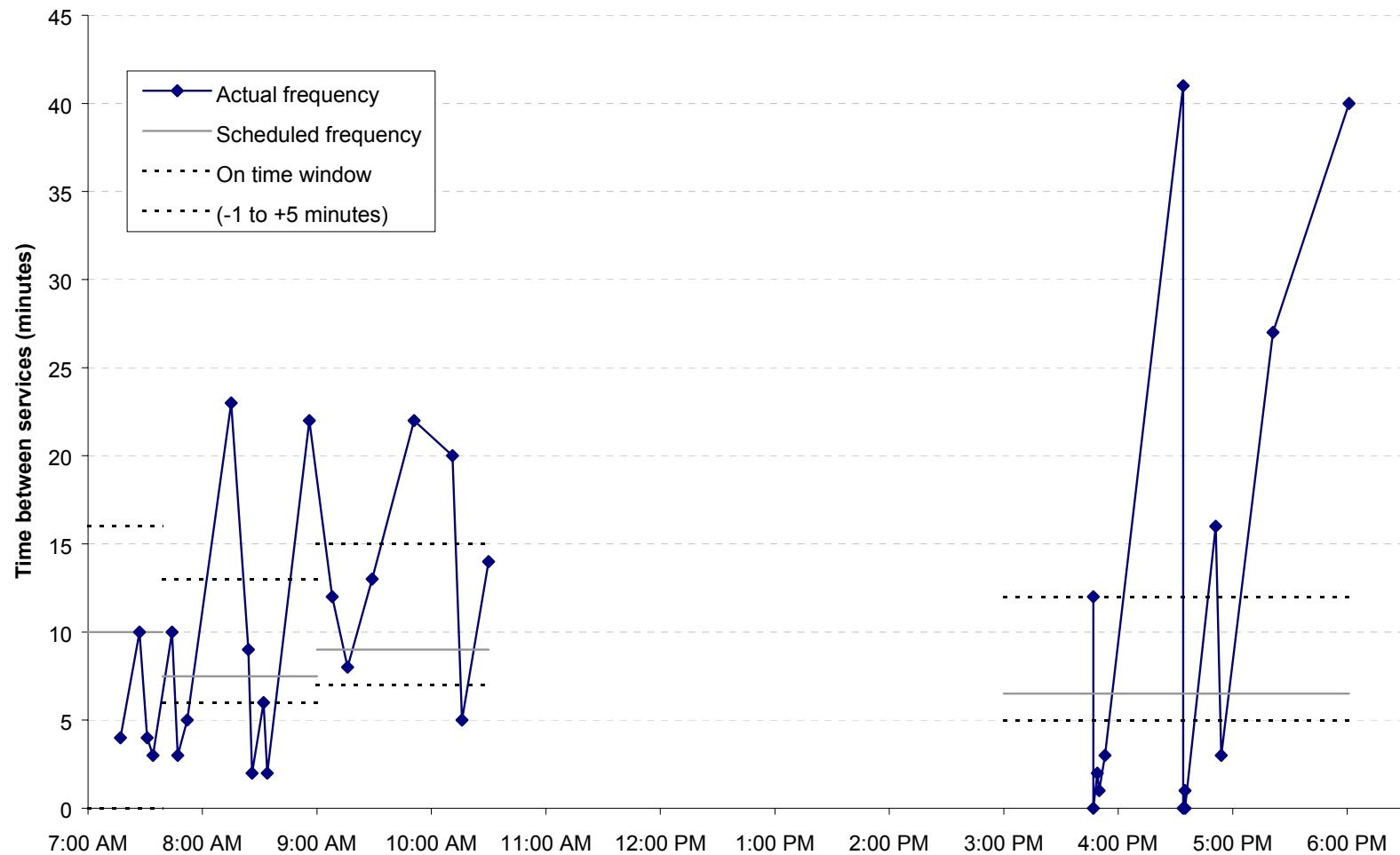
In the morning peak, scheduled headways were 9-11 minutes prior to 7:39 AM, with some additional trips. Subsequently, headways were 7-10 minutes. Fifty-five per cent of trips were on time, 25% early and 20% late. There were four gaps between trips of 20 minutes or more, but these did not result in marked increases in loads.

In the afternoon peak, scheduled headways were 6-7 minutes. Just one of the 13 trips was on time; 62% were early and 31% were late. There was an extremely high degree of bunching. Between 3:47 PM and 4:34 PM, for example, 4 trips arrived within a 6 minute period, followed by a gap of 41 minutes until the next trip. There were two long gaps of 41 minutes (leading up to 4:34 PM) and 40 minutes (leading up to 6:01 PM). While loads on these delayed trips were higher than average (49 and 32 passengers respectively), these were within Muni's maximum load standards.

In the morning peak, an average of 5.1 passengers boarded and 2.6 alighted each trip. In the afternoon peak, the figures were 2.7 boarding and 3.9 alighting. Average loads were 34.8 (morning) and 25.1 (afternoon), with a maximum of 49 – within Muni's maximum load standard of 63 passengers for the 40' trolley coaches used on this line.

According to Muni, the maximum load point on this line in the morning (7-9 AM) is at Fillmore and California, with an average load of 45.2. In the afternoon (6-7 PM) it is at Fillmore and Haight, with an average load of 49.5. These loads are well within the maximum load standard of 63 passengers.

Figure 9 Service frequency. 22-Fillmore northbound



Line 22-Fillmore, southbound [outbound]

This line runs south down Church to 16th, and turns east to serve the Mission District, Potrero Hill and the Central Waterfront. The pointcheck was located on Church, just north of Market.

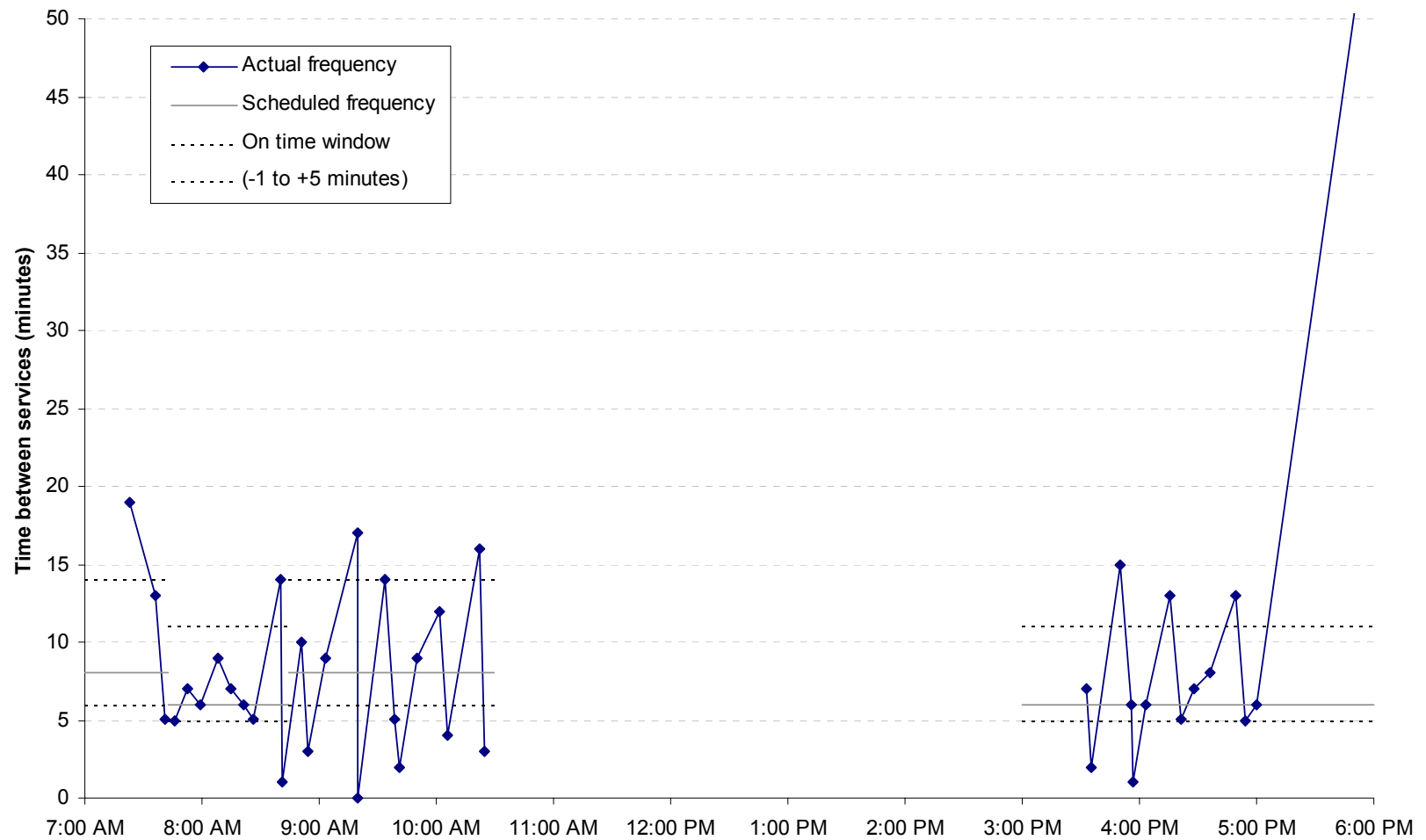
In the morning peak, scheduled headways were 6-9 minutes. Forty-eight per cent of trips were on time, 36% early and 16% late. The maximum gap between trips was 19 minutes, leading up to 7:23 AM.

In the afternoon peak, scheduled headways were 6 minutes. Fifty-seven per cent of trips were on time, 14% early and 29% late. Until 5 PM, the maximum gap was 15 minutes, but there was a gap of 52 minutes between 5 PM and 5:52 PM. This did not lead to a marked increase in loads, however.

In the morning peak, an average of 5.8 passengers boarded each trip and 3.3 alighted. In the afternoon peak, an average of 7.6 boarded and 4.3 alighted. The average load was 22.0 in the morning and 27.7 in the afternoon, with a maximum of 50. All these loads were within Muni's maximum load standard of 63 passengers for the 40' trolley coaches used on this line.

According to Muni, the maximum load point in the morning (7-9 AM) is at 16th and Mission, with an average load of 48.7 passengers. In the afternoon (4-6 PM) it is at Fillmore and California, with an average load of 44.7. All these loads are well within the Muni maximum load standard of 63.

Figure 10 Service frequency. 22-Fillmore southbound



Line 37-Corbett, northbound [inbound]

This line runs west along 14th Street to the residential neighborhoods in Buena Vista and Ashbury Heights. It terminates in Haight-Ashbury at Haight and Masonic. The pointcheck was located on Church Street, just south of Market. Note that there was no pointcheck for southbound/outbound services. These served a separate stop on 14th Street, rather than sharing a stop with the 22-Fillmore and J-Church lines, as with northbound services.

In the morning peak, trips were scheduled at irregular 15 and 30 minute intervals. Even a 30 minute headway was not maintained in practice, however. The observed headways were 51, 40 and 37 minutes.

In the afternoon peak, scheduled headways were 15 minutes. No trips at all were observed for the 2 hour 23 minute period between 3:22 PM and 5:45 PM. Subsequently, trips arrived after gaps of 18, 7 and 11 minutes.

Because of the limited number of trips observed, no service frequency chart is provided for this line.

This line was extremely lightly used at the pointcheck location. In both peaks, a total of just 2 passengers boarded at the pointcheck location, with 5 passengers alighting. The average load was 1.5 in the morning peak, and 1.2 in the afternoon peak, with a maximum of 3 passengers on board. Obviously, overcrowding was not an issue on this line.

According to Muni, the maximum load point for this line in the morning (7-9 AM) is on arrival at Market and Castro, with an average load of 32.3. In the afternoon (6-7 PM), it is at 14th and Church, with an average load of 14.3. All these loads are well within Muni's maximum load standard of 45 passengers for the 30' coaches used on this line.

Line F-Market, westbound [outbound]

This streetcar line runs west along Market Street to Castro and Market. The pointcheck was located on Market at Church.

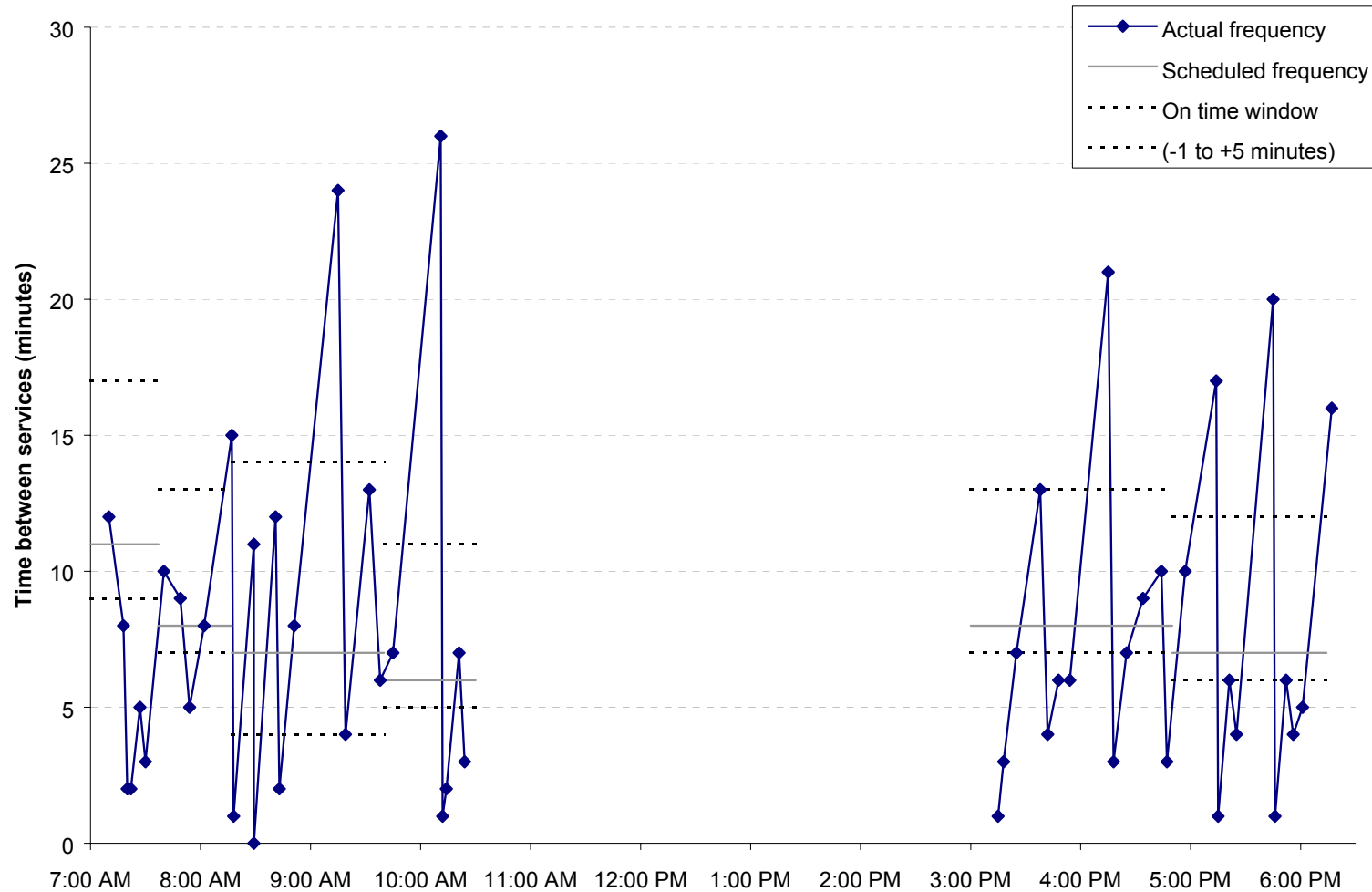
In the morning peak, scheduled headways were 10-12 minutes until 7:37 AM, 5-9 minutes until 9:40 AM, and subsequently 6 minutes. Forty-four per cent of trips were on time, 44% early and 11% late. Two trips were late by a margin of 15 minutes or more, arriving at 9:15 AM after a gap of 24 minutes, and at 10:11 AM after a gap of 26 minutes. There was no increase in loads on these late trips.

In the afternoon peak, scheduled headways were 8 minutes until 4:50 PM, and subsequently 7 minutes. One-third of trips were on time, 50% early and 17% late. There were four gaps of 16-21 minutes in length.

A number of passengers boarded the streetcar at this location, even though the terminus was a short walk away. In the morning peak, an average of 0.3 passengers boarded and 2.2 alighted. In the afternoon peak, an average of 1.9 boarded and 6.6 alighted. The average load was 4.3 in the morning and 14.5 in the afternoon, with a maximum of 35.

According to Muni, the maximum load point in the morning (7-9 AM) is at Market and 5th, with an average load of 11.3. In the afternoon (6-7 PM), it is at Market and Van Ness, with an average load of 37.4.

Figure 11 Service frequency. F-Market westbound



Line F-Market, eastbound [inbound]

This streetcar line runs along Market to Embarcadero, and then north-west to Fisherman's Wharf. The pointcheck was located on Market at Church.

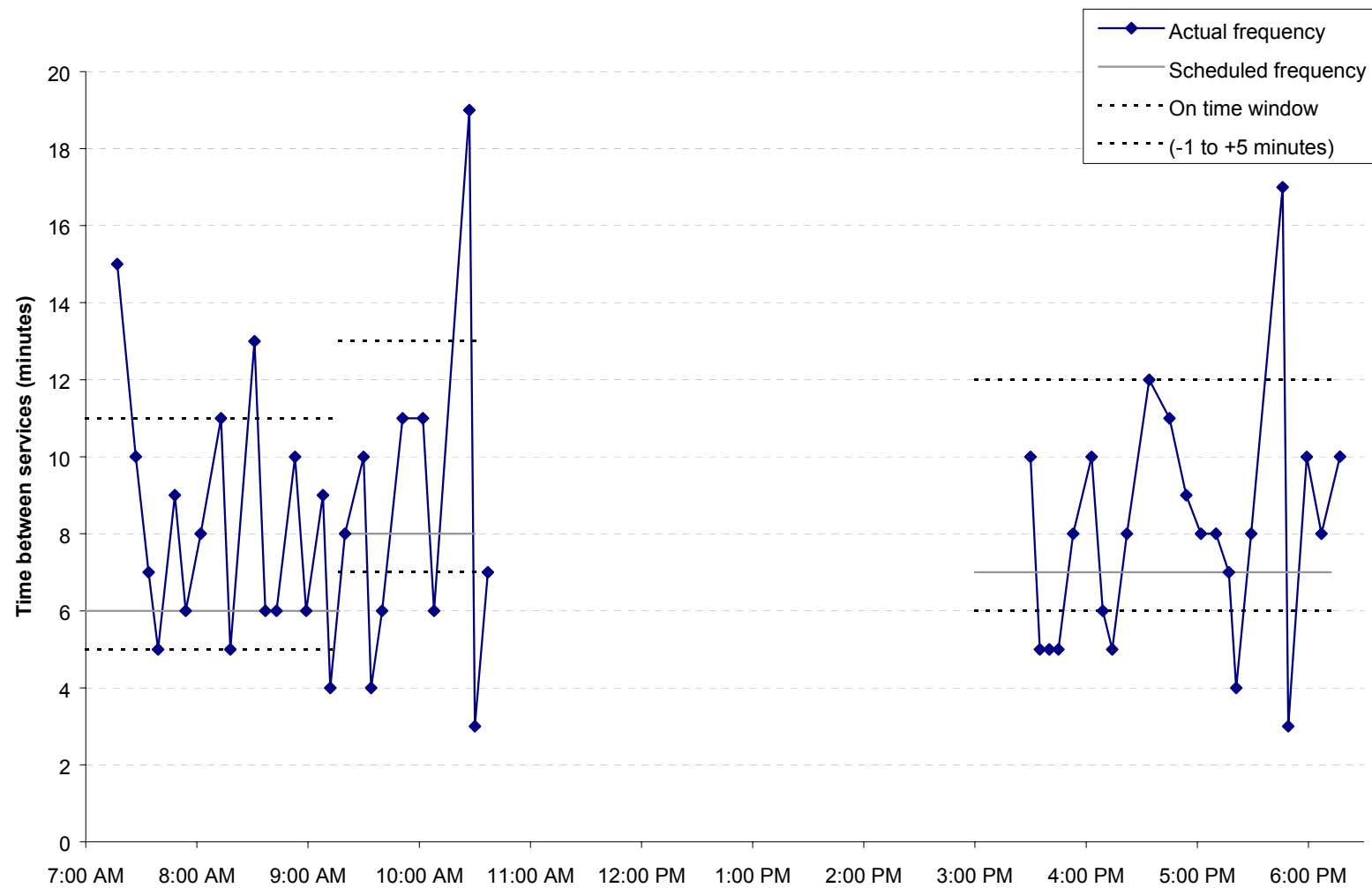
In the morning peak, scheduled headways were 6 minutes until 9:17 AM, when they fell to 8 minutes. This schedule was largely maintained, with 69% of trips on time, 19% early and 12% late. The maximum gap was 19 minutes, leading up to 10:27 AM.

In the afternoon peak, scheduled headways were 7 minutes. All trips were on time or early, with the exception of one that arrived after a 17 minute gap at 5:46 PM. However, considering the pointcheck was located close to the start of the line, good on time performance might have been expected.

In the morning peak, an average of 6.0 passengers boarded and 0.6 alighted each trip. In the afternoon peak, an average of 3.3 boarded and 1.2 alighted. The average load in the morning was 23.7 (maximum 44); in the afternoon, it was 12.5 (maximum 29).

According to Muni data, the maximum load point in the morning (7-9 AM) is on arrival at Market and Gough, with an average load of 36.2. In the afternoon (2-4 PM), it is also on arrival at Market and Gough, with an average load of 26.3. In other words, the section of the line between Church Street and Van Ness stations appears to be the most heavily used.

Figure 12 Service frequency. F-Market eastbound



Line J-Church, northbound [inbound]

This light rail line runs north along Church, and turns east on Duboce and enters the Market Street subway to Embarcadero. While this is a light rail line, track reconstruction meant replacement buses were operating from Balboa Park to the southern part of Church Street at the time of data collection. This may have somewhat affected travel behavior, and hence the results here should be treated with caution. The pointcheck was located on Church just south of Market – the last stop before the line enters the subway.

In the morning peak, scheduled headways were 7-12 minutes. Forty-four per cent of trips were on time, 39% early and 17% late. The three late trips arrived after a 20 minute gap at 8:10 AM, after a 29 minute gap at 9:06 AM, and after a 49 minute gap at 10:23 AM. These delays did not lead to any increase in loads.

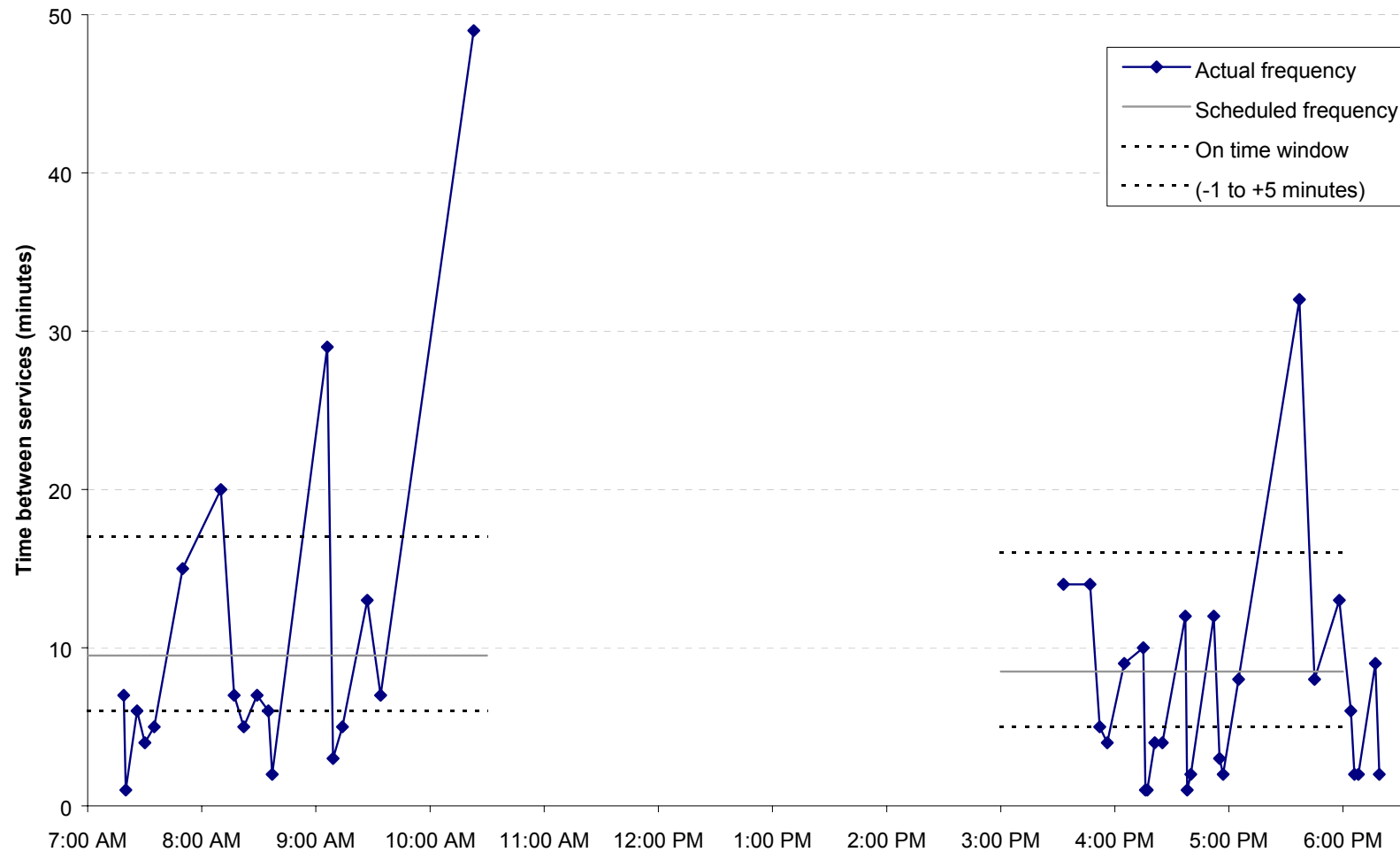
In the afternoon peak, scheduled headways were 6-11 minutes. All trips were on time or early, with the exception of a 32 minute gap between 5:05 PM and 5:37 PM. Again, however, this delay did not result in any increased load.

Few passengers boarded at this location, with an average of 0.3 passengers boarding in the morning peak, and 0.8 in the afternoon. This is unsurprising, as passengers could reach the same destinations using the more frequent K, L and M lines in Church Street Station. An average of 6.3 passengers alighted from each trip in the morning peak, and 3.0 in the afternoon.

Loads were low, with an average load of 4.2 in the morning peak and 4.6 in the afternoon, and a maximum load of 14. These figures are well within Muni's maximum load standard for light rail vehicles of 119 passengers. However, loads at the time of data collection were probably reduced by the use of replacement buses on the southern part of the line.

According to Muni, the maximum load point in the morning (7-9 AM) is at Market and Van Ness, with an average load of 93. In the afternoon (2-4 PM), it is also at Market and Van Ness, with an average load of 30.6. These loads are well within the Muni maximum load standard of 119.

Figure 13 Service frequency. J-Church northbound



Line J-Church, southbound [outbound]

This light rail line runs south along Church and San Jose to Glen Park and Balboa Park. While this is a light rail line, track reconstruction meant replacement buses were operating from the southern part of Church Street at the time of data collection. This may have somewhat affected travel behavior, and hence the results here should be treated with caution. The pointcheck was located on Church just north of Market – the first stop after the line leaves the Market Street subway.

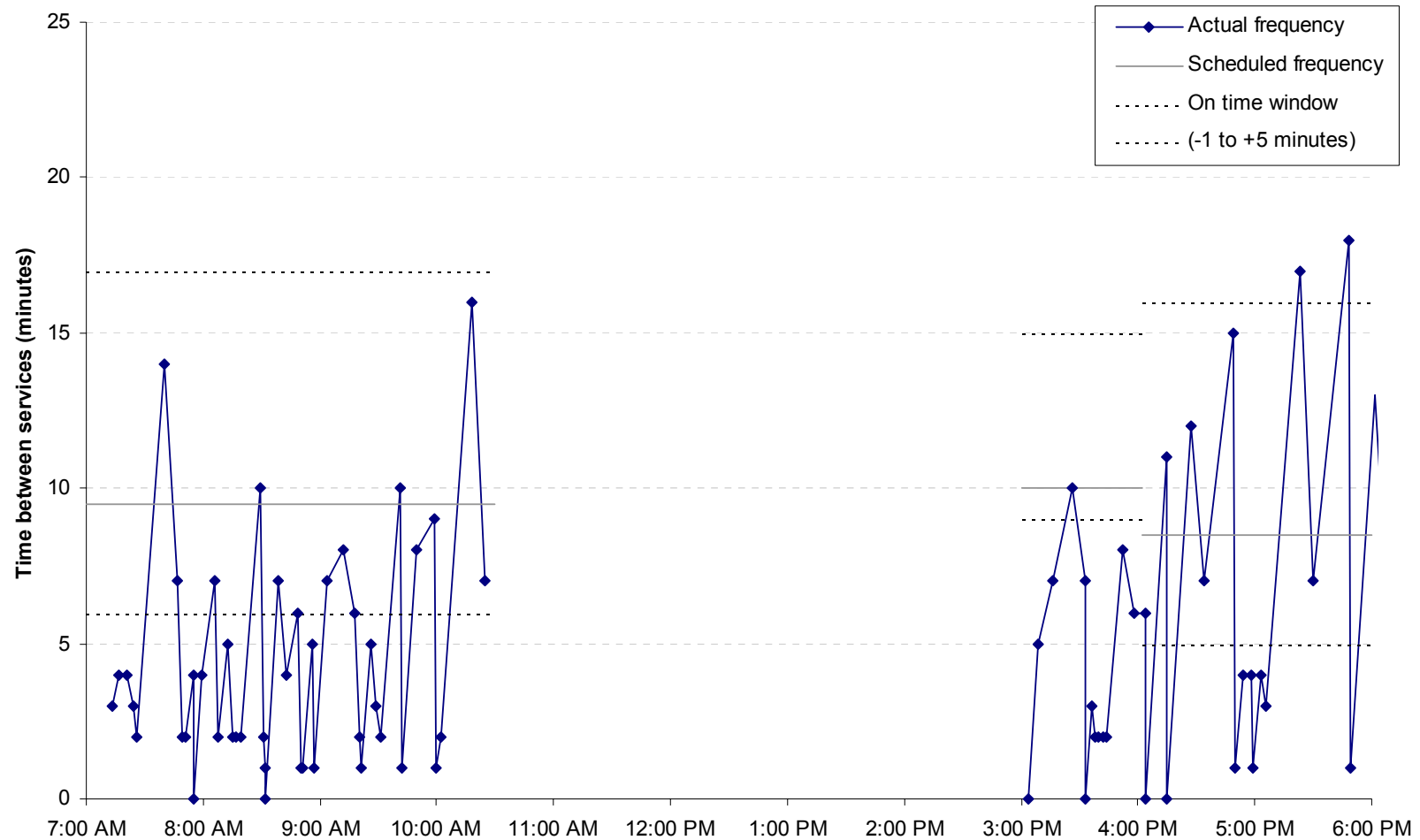
In the morning peak, headways were irregularly scheduled at intervals of 7-12 minutes. All trips were on time or early, and with two exceptions, arrived after gaps of 10 minutes or less. There was some bunching of trips, with two arriving simultaneously on two occasions, and a further six trips arriving after a gap of just one minute.

In the afternoon peak, scheduled headways were 10 minutes until 4:02 PM, and subsequently 6-11 minutes. All except two trips were on time or early, with the late trips arriving at 5:23 PM, after a gap of 17 minutes, and 5:48 PM, after a gap of 18 minutes. These two delayed trips carried above average loads of 85 and 80 passengers respectively, although these were still well within Muni's maximum load standard for light rail vehicles of 119.

In the morning peak, an average of 3.1 passengers boarded and 1.9 alighted each trip. In the afternoon peak, an average of 10.3 boarded and 4.2 alighted. The average load in the morning was 6.5 (maximum 32); in the afternoon, it was 19.9 (maximum 85). These were all well within Muni maximum load standards. However, loads at the time of data collection were probably reduced by the use of replacement buses on the southern part of the line.

According to Muni, the maximum load point in the morning (7-9 AM) is on arrival at Market and Van Ness, with an average load of 23.6. In the afternoon (6-7 PM), it is at Market and Van Ness, with an average load of 91.5.

Figure 14 Service frequency. J-Church southbound



Line K-Ingleside westbound [outbound]

This light rail line runs through the subway to West Portal, and then along Ocean to Balboa Park. While the line between St Francis Circle and Balboa Park is currently closed for track reconstruction, data collection was carried out prior to this. The pointcheck was located in Church Street Station.

In the morning peak, scheduled headways were 9 minutes until 9:57 AM, and subsequently 10 minutes. Most trips were early - 18% were on time, 68% early and 14% late. There was a long gap of 30 minutes between 9:39 AM and 10:09 AM, but this did not lead to any increased load.

In the afternoon peak, scheduled headways were 9-10 minutes until 5:19 PM, and then at irregular intervals of 8-17 minutes. Forty-eight per cent of trips were on time, 43% early and 10% late. The maximum gap was 21 minutes, between 3:10 and 3:31 PM. This led to an above average load of 98 passengers on the subsequent trip, although this was still within Muni's maximum load standard of 119 passengers for light rail vehicles.

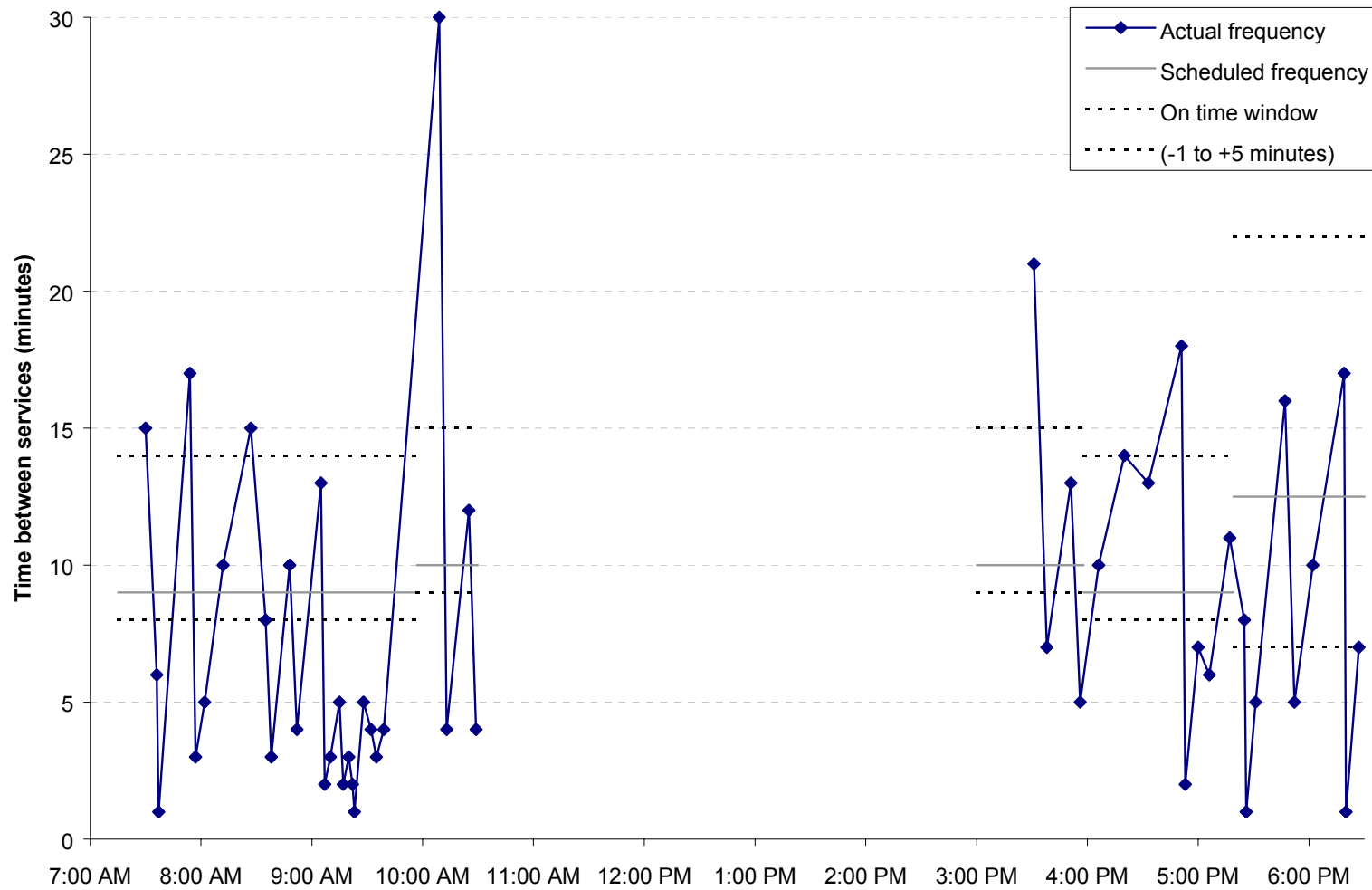
In the morning peak, an average of 2.6 passengers alighted on each trip. In the afternoon peak, the figure was 22.6. No data is available for boardings at this location.

In the morning peak, the average load was 22.5, and the maximum 48. In the afternoon peak, the average load was 75.5. The maximum loads on departure, of 185 and 150 passengers, occurred at 6:19 PM and 6:20 PM respectively. On arrival, these loads were 221 and 194 passengers respectively. While the load on the first of these did not exceed Muni's maximum load standard of 238 for a two-car train, it can be assumed that the load on the subsequent trip was high because not all passengers could board the first trip. It should be noted that, due to the numbers involved, passenger counts for the light rail lines were only approximate.

The maximum load standards for one-car trains (119 passengers) were exceeded on arrival for several trips, at 4:20 PM (load of 133), 5:17 PM (load of 140) and 5:52 PM (load of 135). However, due to large numbers alighting at Church Street, there was space available for passengers to board, and loads on departure were significantly lower.

According to Muni data, the maximum load point in the morning (7-9 AM) is on arrival at Market and Van Ness, with an average load of 30.7. In the afternoon (6-7 PM), it is at Market and Van Ness (i.e. on arrival at Church Street Station), with an average load of 115.1. This is just within Muni's maximum load standard of 119 for one-car trains.

Figure 15 Service frequency. K-Ingleside westbound



Line K-Ingleside eastbound [inbound]

This line runs to Embarcadero through the Market Street subway. While the line between St Francis Circle and Balboa Park is currently closed for track reconstruction, data collection was carried out prior to this. The pointcheck was located in Church Street Station.

In the morning peak, scheduled headways were 17-18 minutes until 7:51 AM, and then 9-10 minutes. All trips were on time or early, with the exception of one trip that arrived at 10:36 AM after a 25 minute gap. There was no increase in load on this delayed trip.

In the afternoon peak, scheduled headways were 9-10 minutes until 4:59 PM, and then 8-13 minutes. Forty-one per cent of trips were on time, 45% early and 14% late. The maximum gap was 21 minutes, leading up to 5:56 PM. This resulted in an above-average load of 90 passengers on the subsequent trip, but this was well within the Muni maximum load standard of 238 for the two-car train.

In the morning peak, an average of 7.5 passengers boarded and 2.2 alighted from each trip. In the afternoon peak, an average of 5.6 passengers boarded and 4.2 alighted.

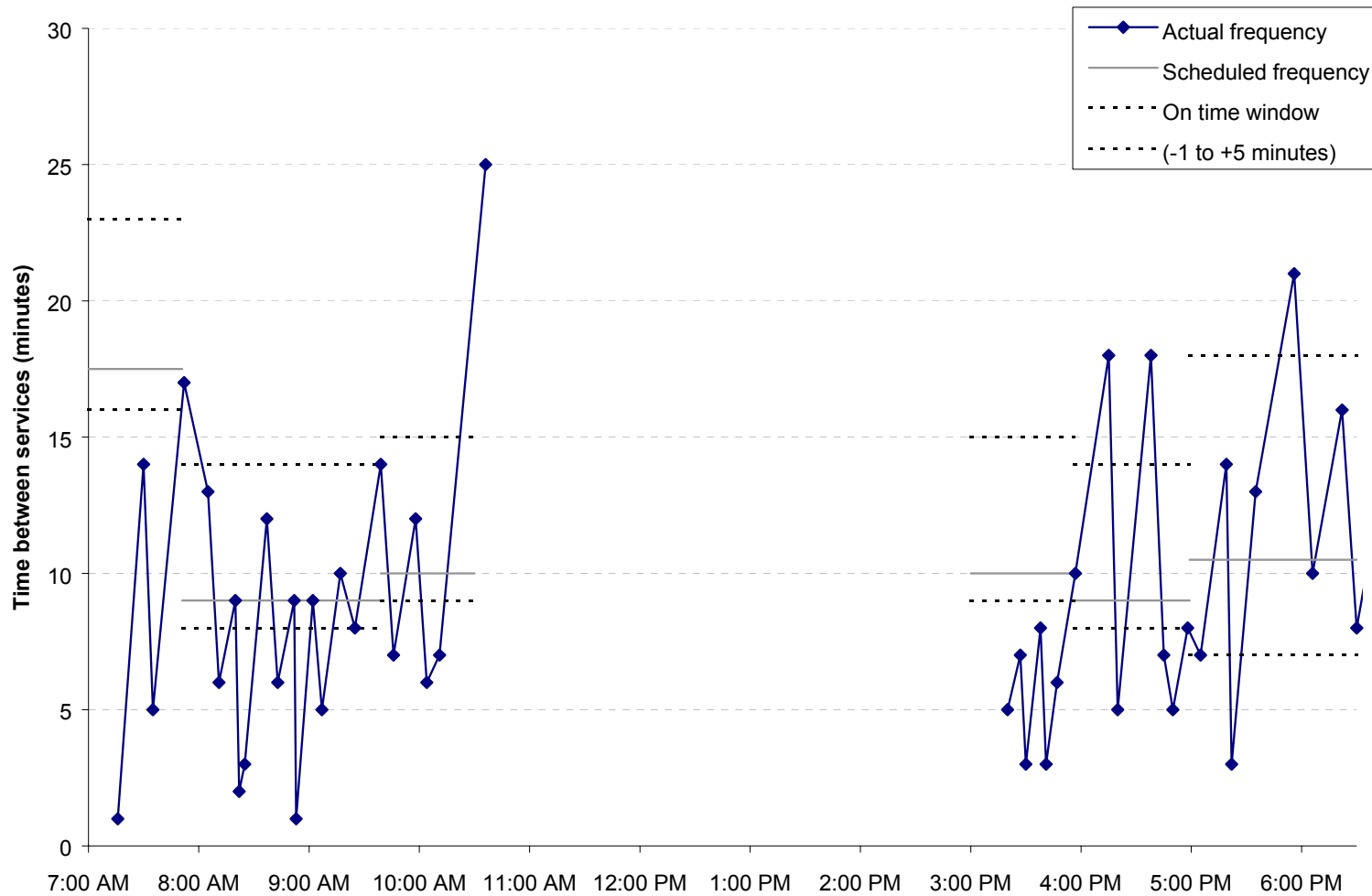
The average load in the morning peak was 133 passengers. While this was above Muni's maximum load standard of 119 passengers for one-car trains, many of the peak trips used two-car trains. On average, therefore, the maximum load standard was not exceeded.

Between 7:30 AM and 8:52 AM, every trip except one carried loads of 140 passengers or more, with a maximum load of 320. While passenger counts were only approximate when loads were this high, 11 of the 24 trips observed during the morning peak appeared to be in excess of the maximum load standards (119 for one-car trains, 238 for two-car trains). It is likely that many passengers were unable to board, and were forced to wait for the next trip.

In the afternoon peak, loads were far lower. The average load was 34.0, and the maximum 90.

According to Muni, the maximum load point for the line in the morning (7-9 AM) is on arrival at Market and Van Ness, i.e. on departure from Church Street, with an average load of 82.0 passengers. In the afternoon (4-6 PM), it is at Market and Van Ness, with an average load of 38.8.

Figure 16 Service frequency. K-Ingleside eastbound



Line L-Taraval, westbound [outbound]

This light rail line runs through the subway to West Portal, and then along Taraval to Ocean Beach and San Francisco Zoo. The pointcheck was located in Church Street Station.

In the morning peak, scheduled headways were 9-11 minutes until 7:40 AM, then 7 minutes until 9:32 AM, and then 9-12 minutes. Forty-five per cent of trips were on time, 40% early and 15% late. The longest gap was 20 minutes between 8:08 AM and 8:28 AM; this was immediately followed by an 18 minute gap. While loads on these delayed trips were above average, they were well within Muni's maximum load standards.

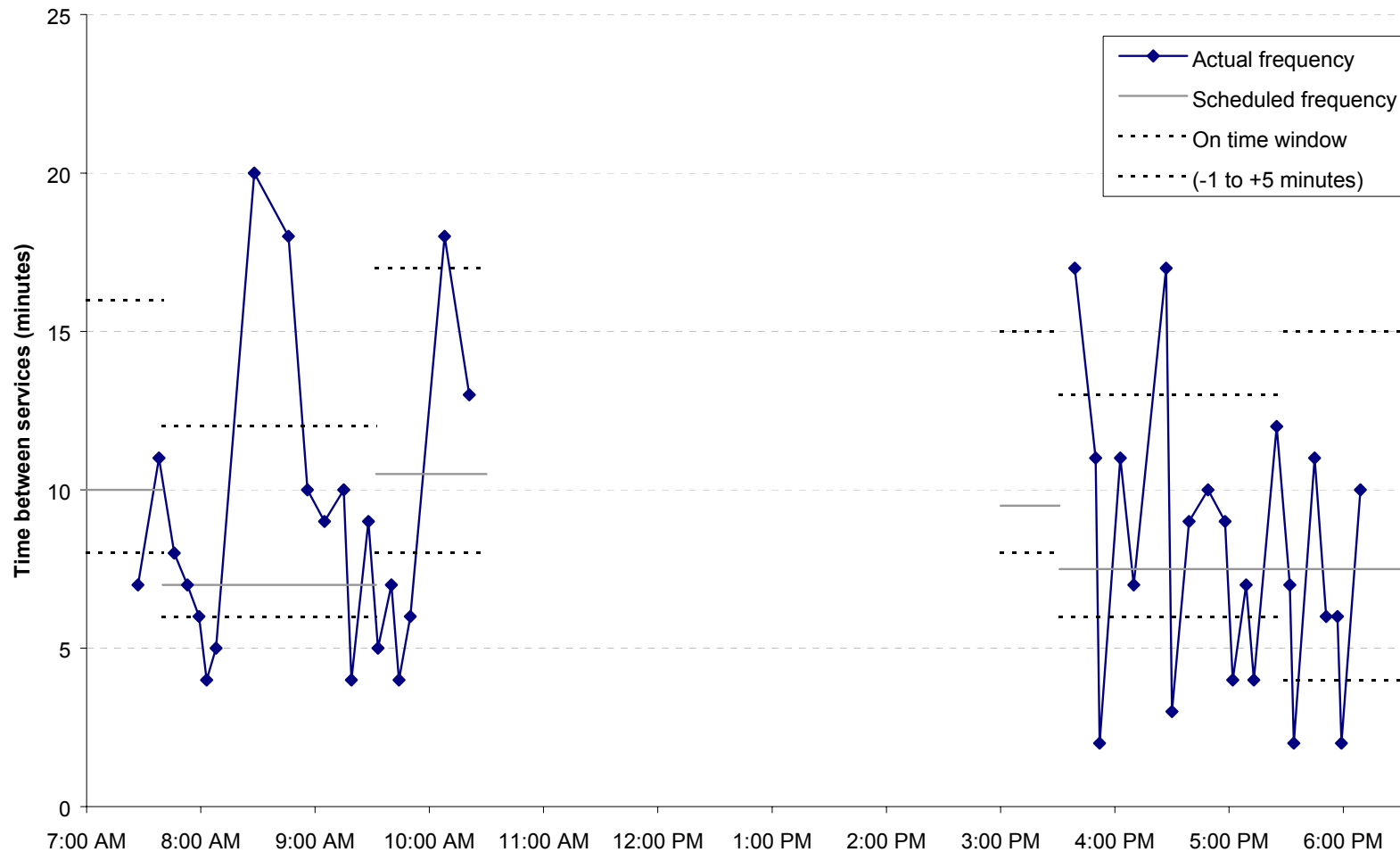
In the afternoon peak, scheduled headways were 9-10 minutes until 3:31 PM, then 7-8 minutes until 5:29 PM, and then 5-10 minutes. All trips were on time or early, with the exception of two that arrived after 17 minute gaps at 3:39 PM and 4:27 PM. While loads on these late trips were above average (89 and 109 passengers respectively), they were within Muni's maximum load standards.

In the morning peak, an average of 2.8 passengers alighted on each trip. In the afternoon, the average was 18.4. No figures are available for boardings at this location.

The average load in the morning was 22.9, with a maximum of 38 passengers. In the afternoon, the average load was 92.1, with a maximum of 200 passengers. The average load was within Muni's maximum load standard of 119 for a one-car train. However, loads on three individual one-car train trips (at 4:49 PM, 5:25 PM and 6:09 PM) exceeded this standard on both arrival and departure. The standard for two-car trains (238 passengers) was not exceeded on any trip.

According to Muni, the maximum load point for this line in the morning (7-9 AM) is at Embarcadero, with an average load of 23.3. In the afternoon (6-7 PM), it is also at Embarcadero, with an average load of 109.4 – within the Muni maximum load standard of 119.

Figure 17 Service frequency. L-Taraval westbound



Line L-Taraval, eastbound [inbound]

This line runs to Embarcadero through the Market Street subway. The pointcheck was located in Church Street Station.

In the morning peak, scheduled headways were 7 minutes until 9:18 AM, and then 8-12 minutes. Apart from a 16 minute gap leading up to 8:06 AM, and a 18 minute gap leading up to 9:38 AM, all trips were on time or early. The first of these delayed trips (a two-car train) carried a load of 320 passengers, well in excess of Muni's maximum load standard of 238.

In the afternoon peak, scheduled headways were 7-8 minutes until 5:54 PM, and then 10-11 minutes. Thirty-five per cent of trips were on time, 48% early and 17% late. The longest gaps were 24 and 26 minutes, leading up to 5:45 PM and 6:11 PM respectively. While these delayed trips carried above average loads (64 and 58 passengers respectively), these were well within Muni maximum load standards.

In the morning peak, an average of 7.5 passengers boarded and 3.7 alighted each trip. In the afternoon peak, an average of 4.4 boarded and 3.5 alighted.

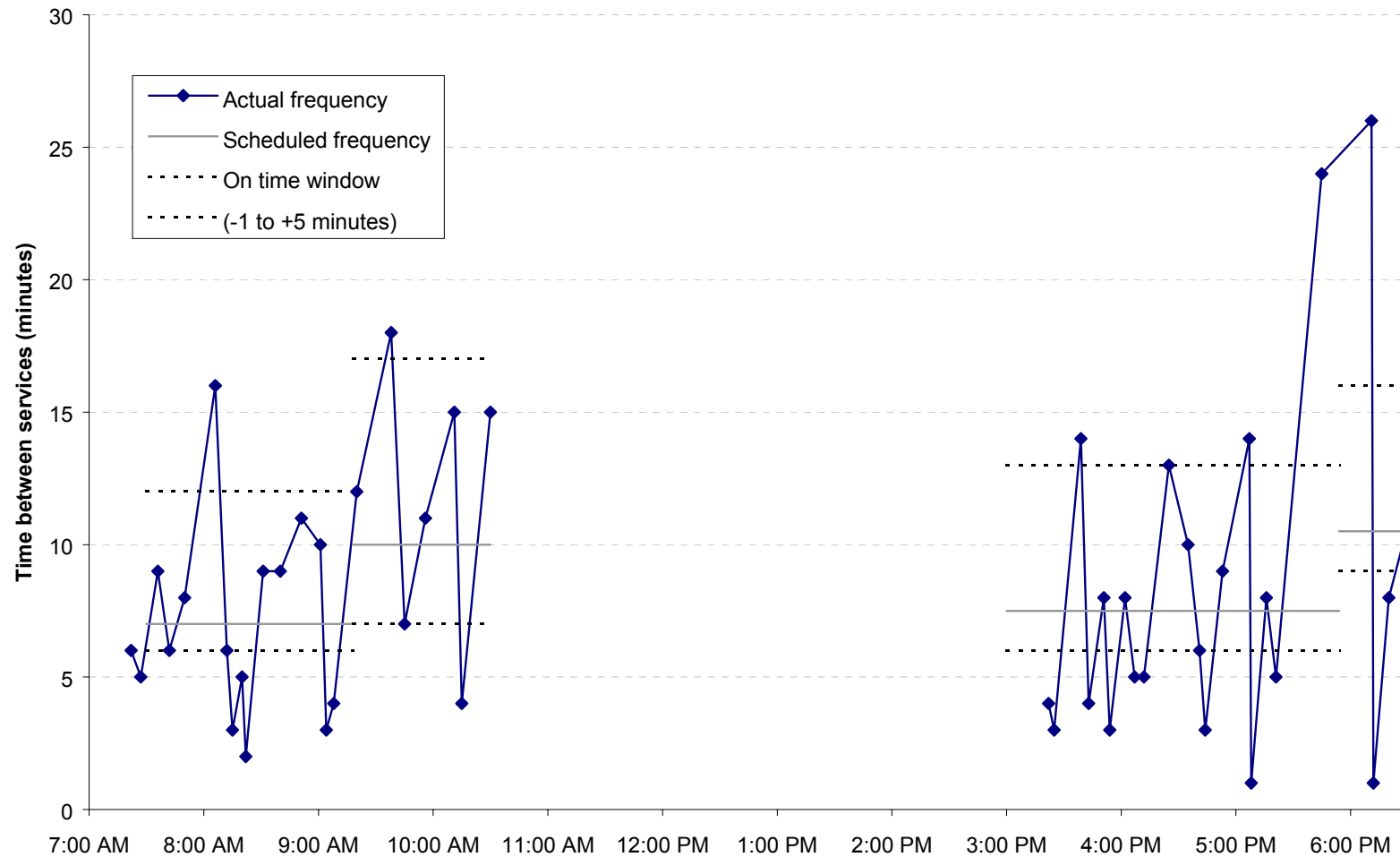
In the morning peak, the average load was 194.3 passengers. Most trips used two-car trains, for which Muni's maximum load standard is 238 passengers. On average, then, the standards were not exceeded.

However, 13 out of the 23 trips carried a load in excess of this standard. Even at 10:30 AM, after the peak, trains were still overcrowded. The maximum load was 339 passengers, at 8:40 AM, and six other trips had loads of more than 300 passengers. While the passenger counts were approximate, these trips were full, and it is likely that there was no room for additional passengers to board.

In the afternoon peak, loads were lower. The average load was 32, and the maximum 100.

According to Muni, the maximum load point in the morning (7-9 AM) is on arrival at Embarcadero, with an average load of 102.5. In the afternoon (6-7 PM), it is also on arrival at Embarcadero, with an average load of 39.9.

Figure 18 Service frequency. L-Taraval eastbound



Line M-Oceanview, westbound [outbound]

This light rail line runs through the subway to West Portal, and then via San Francisco State University and Oceanview to Balboa Park. The pointcheck was located in Church Street Station.

In the morning peak, scheduled headways were 9 minutes until 8:18 AM, then 1-7 minutes until 9:39 AM, and then 9-10 minutes. Forty-five per cent of trips were on time, 15% early and 40% late. A far higher proportion of trips was late than for the other subway lines at Church Street Station. The maximum gap was 20 minutes, but no increased load was apparent on the subsequent late trip at 9:31 AM.

In the afternoon peak, scheduled headways were 9-10 minutes until 5:55 PM, and then 8-12 minutes. Thirty-five per cent of trips were on time, 41% early and 24% late. The longest gap was 22 minutes, leading up to 5:11 PM. While this late trip carried an above average load of 125 passengers on departure (157 on arrival), this was a two-car train, and the load was well within Muni's maximum load standard.

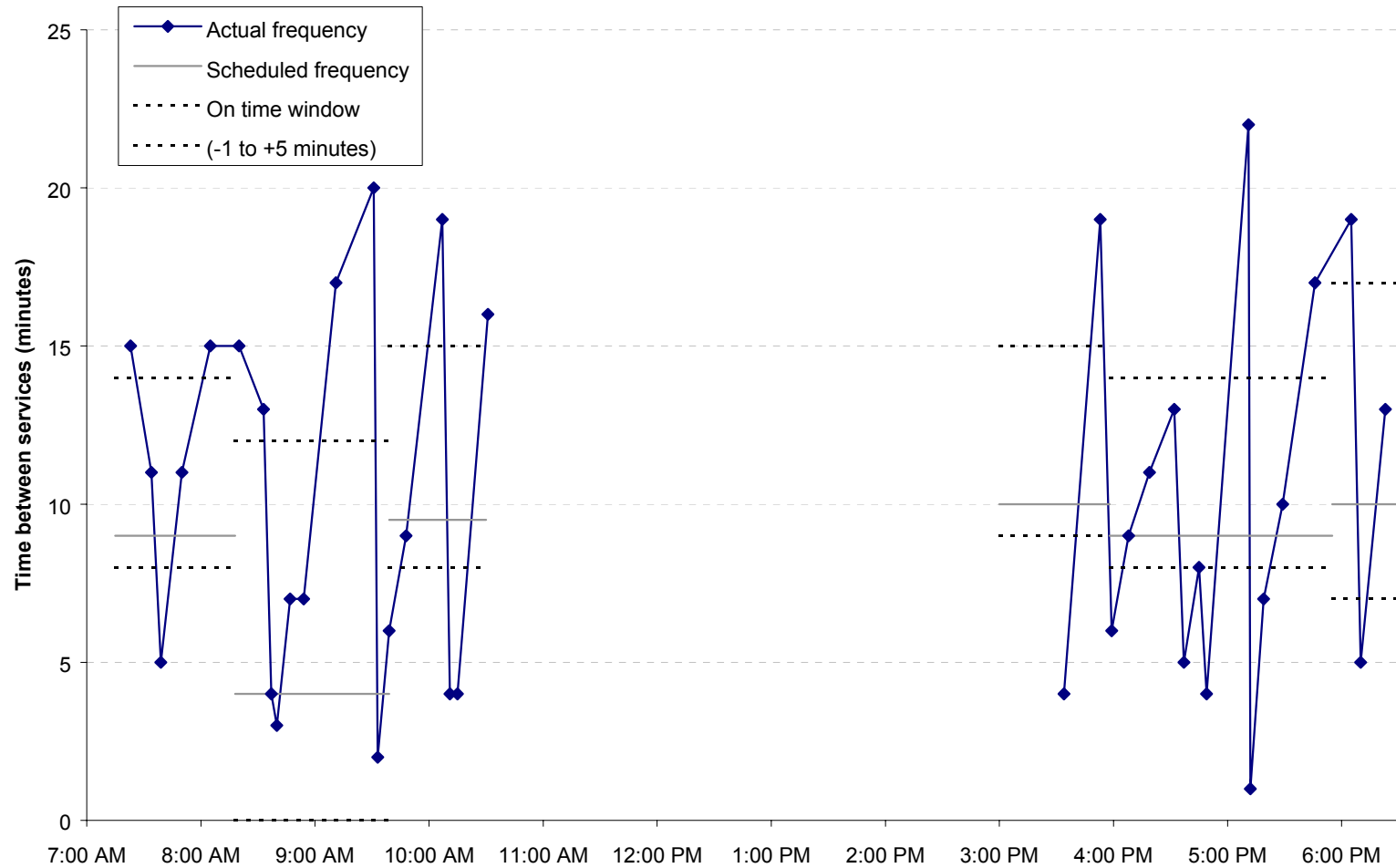
An average of 3.0 passengers alighted at Church Street Station in the morning peak, and 24.3 in the afternoon peak. No figures are available for boardings at this location.

In the morning peak, the average load was 29.1 passengers, and the maximum 60. In the afternoon peak, the average load was 100.8 passengers. Since many trips used two-car trains, Muni maximum load standards (119 for one-car train, 238 for two-car) were not exceeded on average.

However, two trips did carry loads in excess of these standards – a two-car train at 6:10 PM, with a load on arrival of 257, and a one-car train at 6:23 PM, with a load on arrival of 161. These loads on departure were 220 and 135 respectively.

According to Muni data, the maximum load point for the line in the morning (7-9 AM) is at Embarcadero, with an average load of 35.9. In the afternoon (6-7 PM), it is also at Embarcadero, with an average load of 115.2. These are within Muni's maximum load standard of 119 for light rail vehicles.

Figure 19 Service frequency. M-Oceanview westbound



Line M-Oceanview, eastbound [inbound]

This line runs to Embarcadero through the Market Street subway. The pointcheck was located in Church Street Station.

In the morning peak, scheduled headways were 9 minutes until 9:39 AM, and then 10 minutes. Forty-three per cent of trips were on time, 43% early and 14% late. The longest gaps were 22 minutes, leading up to 8:04 AM, and 24 minutes, leading up to 8:50 AM. The first of these delayed trips carried a full (and overcrowded) load of 320 passengers. On the second delayed trip, the load was in line with the average.

In the afternoon peak, scheduled headways were 9-10 minutes until 5:45 PM, and then 10-13 minutes. Twenty-two per cent of trips were on time, 44% early and 33% late. There were two long gaps, one of 28 minutes leading up to 4:42 PM, and one of 26 minutes leading up to 5:43 PM. Loads were not markedly higher on these delayed trips.

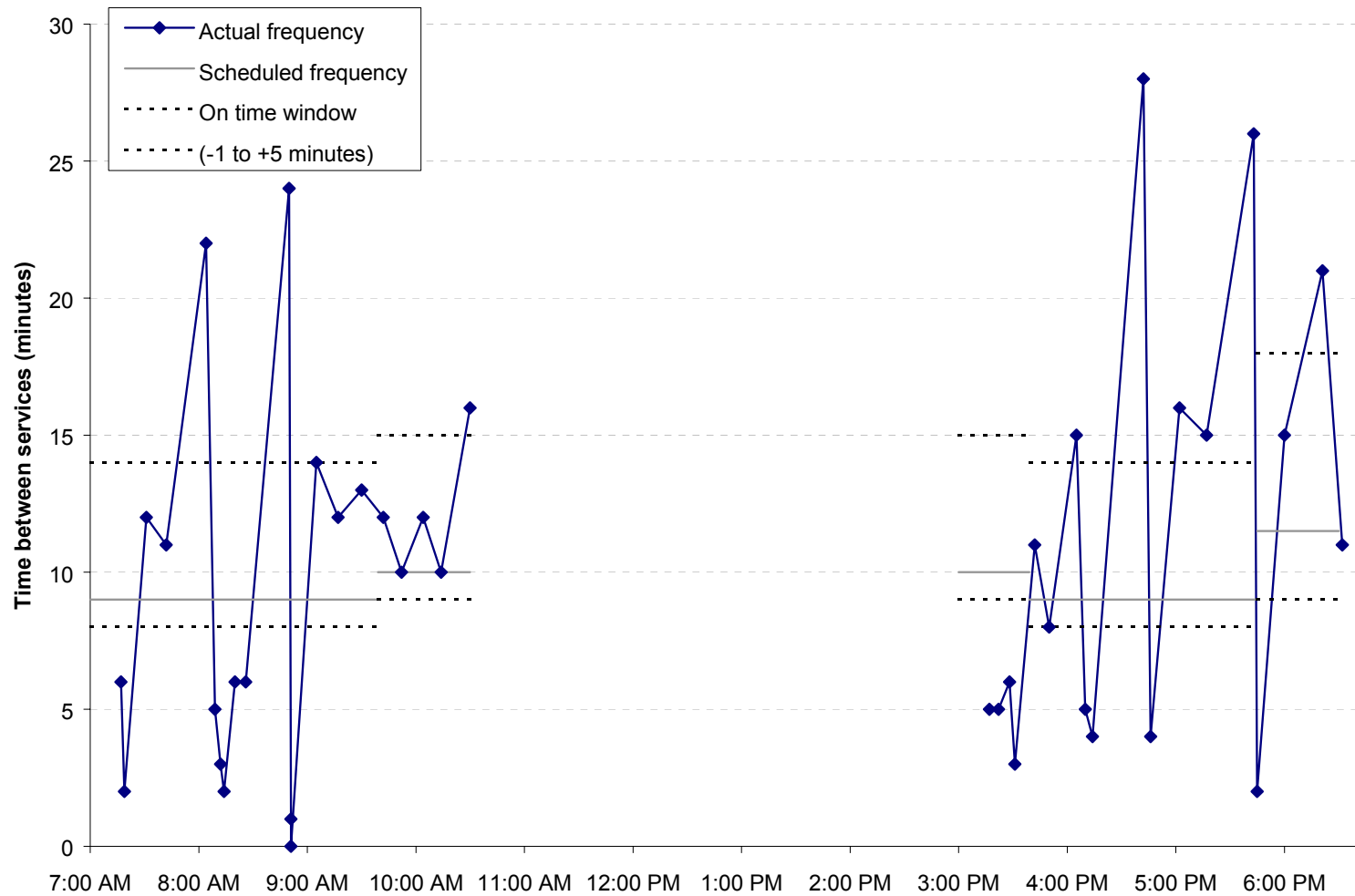
In the morning peak, an average of 6.8 passengers boarded and 3.4 alighted each trip. In the afternoon, an average of 5.2 boarded and 6.5 alighted.

The average load in the morning peak was 149.4 passengers. Since most trips were made with two-car trains, average loads were within Muni maximum load standards (119 for one-car trains, 238 for two-car trains). Loads on three individual trips did, however, exceed these standards, and the maximum load was 320 passengers.

In the afternoon peak, loads were lower. The average load was 51.2 passengers, and the maximum 150 at 3:12 PM. Since this was a two-car train, Muni maximum load standards were not exceeded.

According to Muni, the maximum load point in the morning (7-9 AM) is on arrival at Embarcadero, with an average load of 89.7. In the afternoon (2-4 PM), it is also on arrival at Embarcadero, with an average load of 37.5.

Figure 20 Service frequency. M-Oceanview eastbound



Summary of subway lines

The K-Ingleside, L-Taraval and M-Oceanview all follow the same route between Embarcadero and West Portal, using the Market Street subway. In addition, shuttle services operate between Embarcadero and Castro Street Station. In many cases, passengers will be indifferent as to which line they use. It is therefore instructive to look at the pattern of headways and passenger loads for all lines together. A delay on one line, for example, would be less of an issue if trips on other lines arrive in the interim.

As Figures 25 and 26 show, headways were more even than for the lines taken individually. However, there was significant bunching of trips, with many arriving simultaneously.

For westbound lines, most trips in the morning peak arrived within a narrow 1-4 minute window. All but one arrived within an 8 minute window, the exception being a 17 minute gap between 9:50 AM and 10:07 AM. While this led to an above average load (60 passengers) on the subsequent trip, overcrowding was not an issue.

In the afternoon peak, most westbound trips arrived within a 1-4 minute window. The maximum gap was 12 minutes, between 3:10 PM and 3:22 PM. Neither this nor other gaps of 9-11 minutes led to a marked increase in loads on the subsequent trip.

For eastbound lines, headways were more irregular. While most trips in the morning peak arrived within a 1-3 minute window, there were a significant number of gaps of 4-10 minutes. The longest gap was 15 minutes, between 10:15 AM and 10:30 AM. Again, however, there was little relationship between the headway and the load on the subsequent trip. In the afternoon peak, the maximum gap was 11 minutes.

The average number boarding eastbound lines was 6.8-7.5 in the morning peak, and 4.4-5.6 in the afternoon peak. No data is available for westbound boardings. For alightings on eastbound lines, the average number was 2.2-3.7 in the morning peak, and 3.5-6.5 in the afternoon peak. For alightings on westbound lines, the average was 2.6-3.0 in the morning peak, and 18.4-24.3 in the afternoon peak.

It is striking that the number of passengers boarding eastbound lines in the morning peak, to travel downtown in the peak direction of flow, was far less than those alighting from westbound lines in the afternoon peak. One possible explanation is that, since many eastbound trains were fully loaded on departure from Church Street in the morning peak, passengers instead used other travel options. They might use the N-Judah, J-Church or F-Market

lines, or travel from Castro Street or Van Ness stations. In the afternoon peak, they can return to Church Street Station.

It is also worth noting that a significant number of passengers boarded at Church Street but traveled against the peak direction of flow.

Regarding loads, Muni standards for maximum loads were not exceeded on average, either at Church Street Station or, according to Muni data, at the maximum load point. However, loads on many individual trips – eastbound in the morning peak and, on arrival at Church Street, westbound in the afternoon peak – exceeded these standards. Indeed, on many of these trips, there was not enough space to allow all passengers to board.

Figure 21 Service frequency. All westbound subway lines

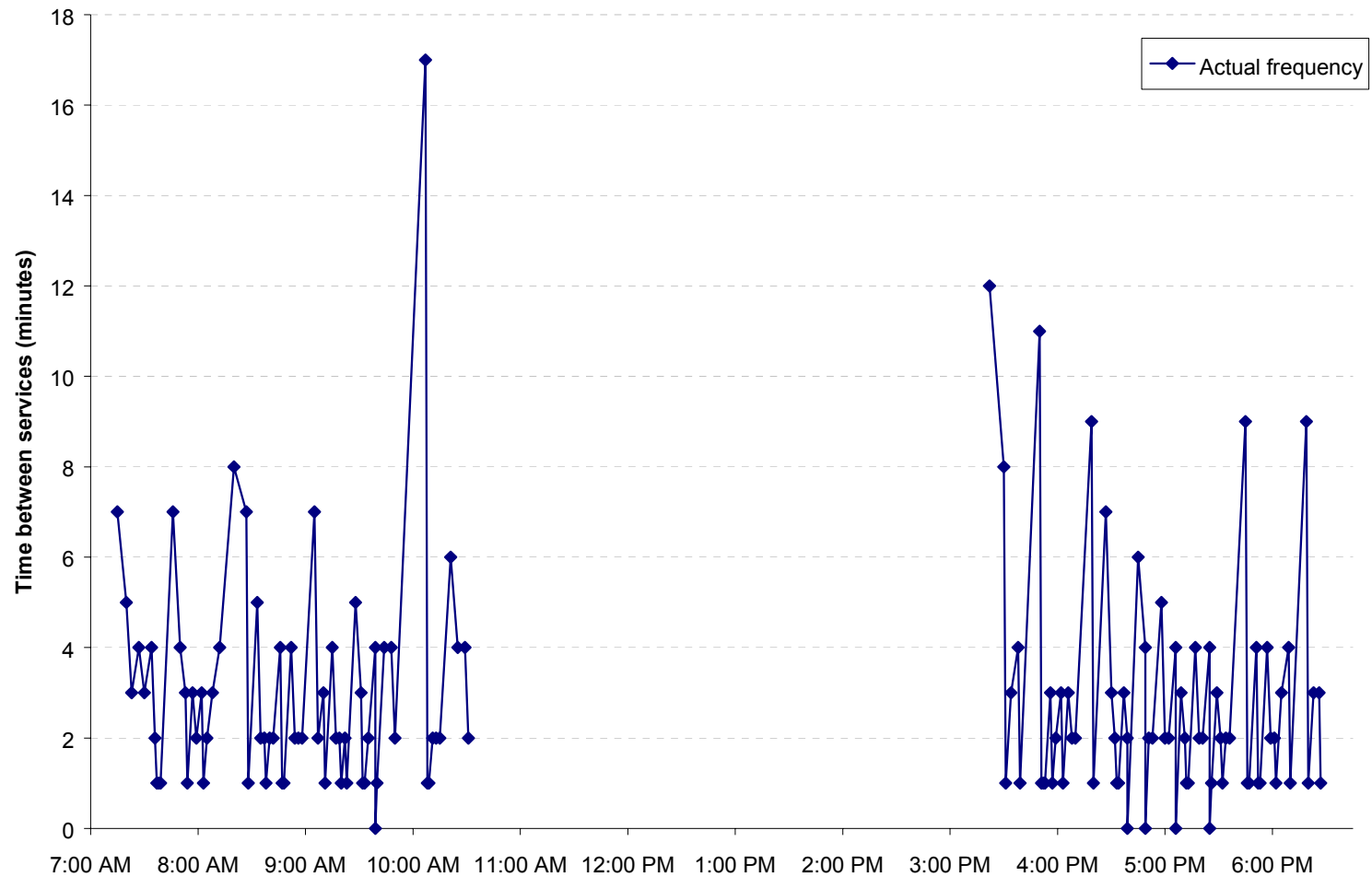
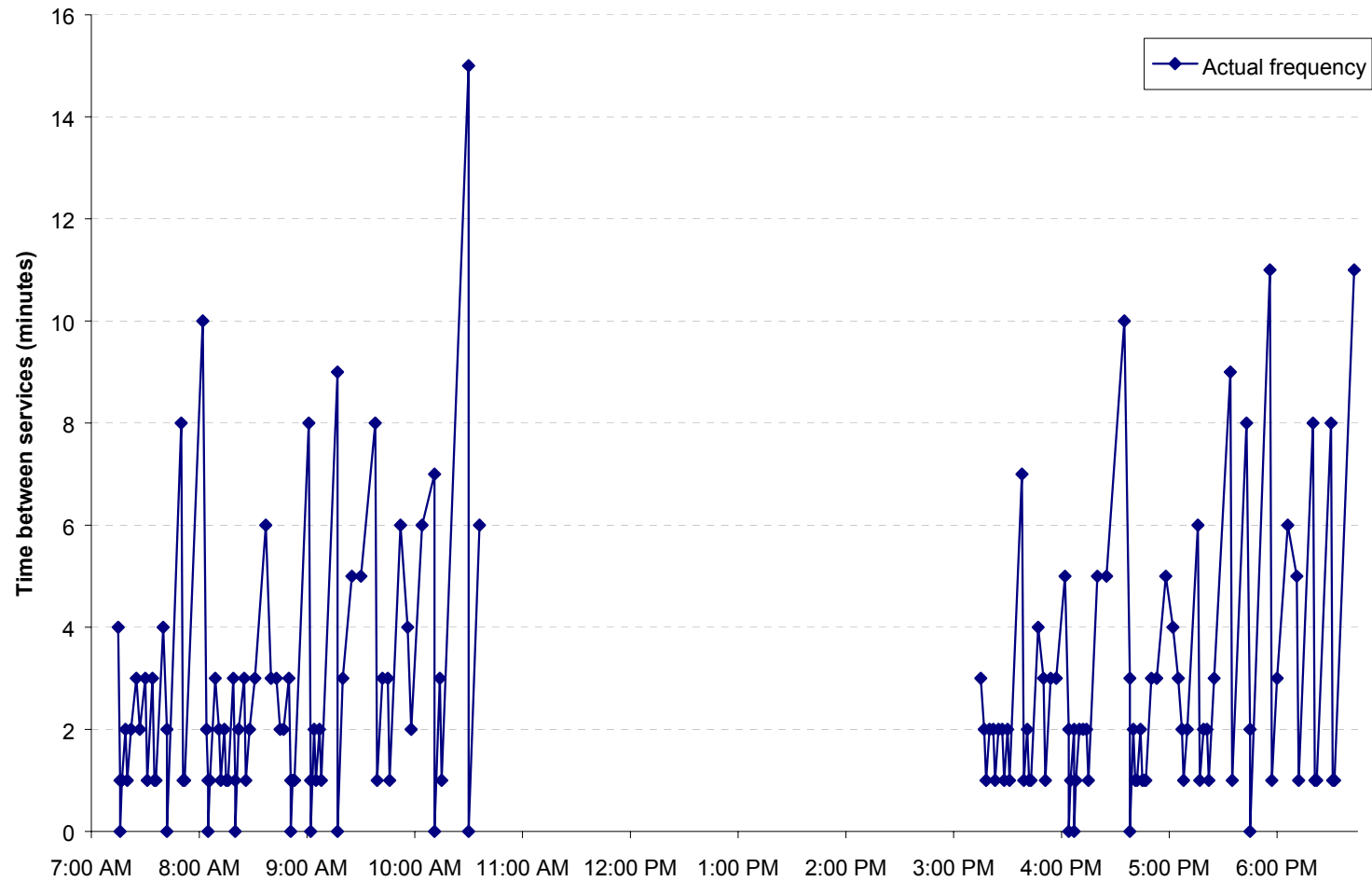


Figure 22 Service frequency. All eastbound subway lines



Line N-Judah, westbound [outbound]

This line runs west along Duboce, through the subway under Buena Vista Park and along Irving and Judah to Ocean Beach. The pointcheck was located on Duboce at Church, at the first stop after leaving the Market Street subway.

In the morning peak, scheduled headways were 6-8 minutes until 9:01 AM, and then 8-12 minutes. All trips were on time or early.

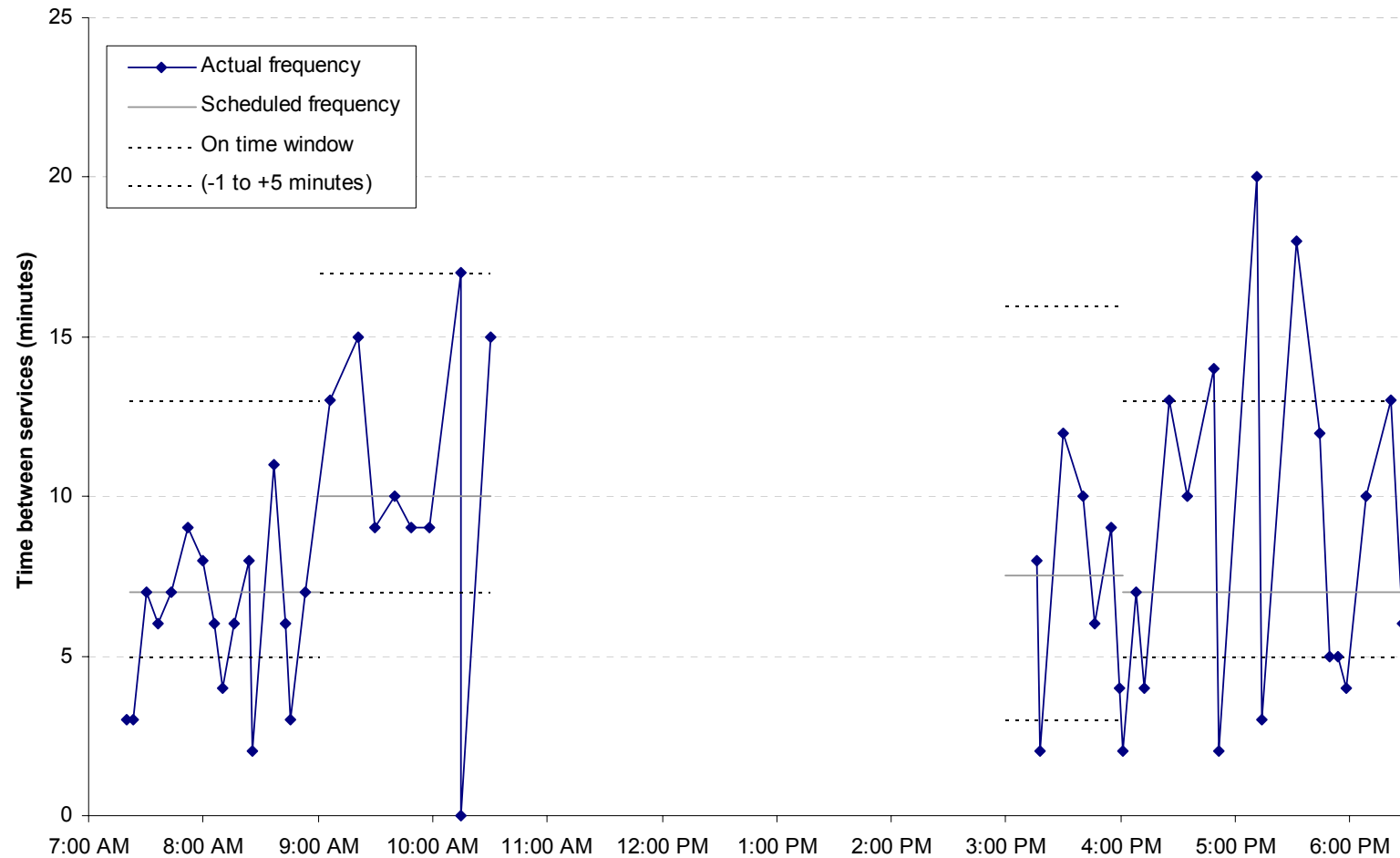
In the afternoon peak, trips were scheduled at irregular 4-11 minute intervals until 4:01 PM, and then at 6-8 minute intervals. Sixty-three per cent of trips were on time, 25% early and 13% late. The maximum gap was 20 minutes, between 4:51 PM and 5:11 PM. The load on the subsequent trip was 232 passengers, just within Muni's maximum load standard of 238 for the two-car train.

In the morning peak, an average of 11.3 passengers boarded each trip, and 4.0 alighted. In the afternoon peak, an average of 8.6 boarded and 12.0 alighted.

The average load in the morning peak was 48.3, with a maximum of 80 – well within Muni maximum load standards. In the afternoon, the average load was 157.8. The maximum load standards were exceeded on arrival or departure for 7 out of the 24 trips observed; all of these were between 4:49 PM and 6:21 PM. The maximum load of 307 occurred at 5:54 PM.

According to Muni, the maximum load point in the morning (7-9 AM) is on arrival at Market and Van Ness, with an average load of 33.5. In the afternoon (6-7 PM), it is at Market and Van Ness (i.e. on arrival at Church Street Station), with an average load of 118.6 – just within Muni's maximum load standard of 119 for a one-car train.

Figure 23 Service frequency. N-Judah westbound



Line N-Judah, eastbound [inbound]

This line enters the Market Street subway at Church and Duboce, and runs to Embarcadero and Mission Bay. The pointcheck was located on Duboce at Church, at the last stop before the line enters the subway.

In the morning peak, scheduled headways were 6-8 minutes until 9:31 AM, and then 10 minutes. All trips were on time or early, with the exception of an 18 minute gap leading up to 9:46 AM, and a 19 minute gap leading up to 10:28 AM. While these delays led to above average loads on the subsequent trips (200 and 130 passengers respectively), these loads were within Muni maximum load standards for the two-car trains used.

In the afternoon peak, scheduled headways were 6-10 minutes until 3:38 PM, and then 6-8 minutes. Fifty-seven per cent of trips were on time, 30% early and 13% late. The longest gap was 21 minutes, between 6:06 PM and 6:27 PM. While the load on the subsequent trip was above average (105 passengers), this was well within Muni's maximum load standards.

In the morning peak, an average of 10.6 passengers boarded each trip, and 7.3 alighted. It is notable that, on average, more passengers boarded each trip here than on the eastbound K, L and M lines in Church Street Station, where services are more frequent. Possibly, passengers preferred to use a surface stop. Alternatively, they could have opted for the N-Judah because of a perception of less overcrowding, and a greater chance of actually being able to board.

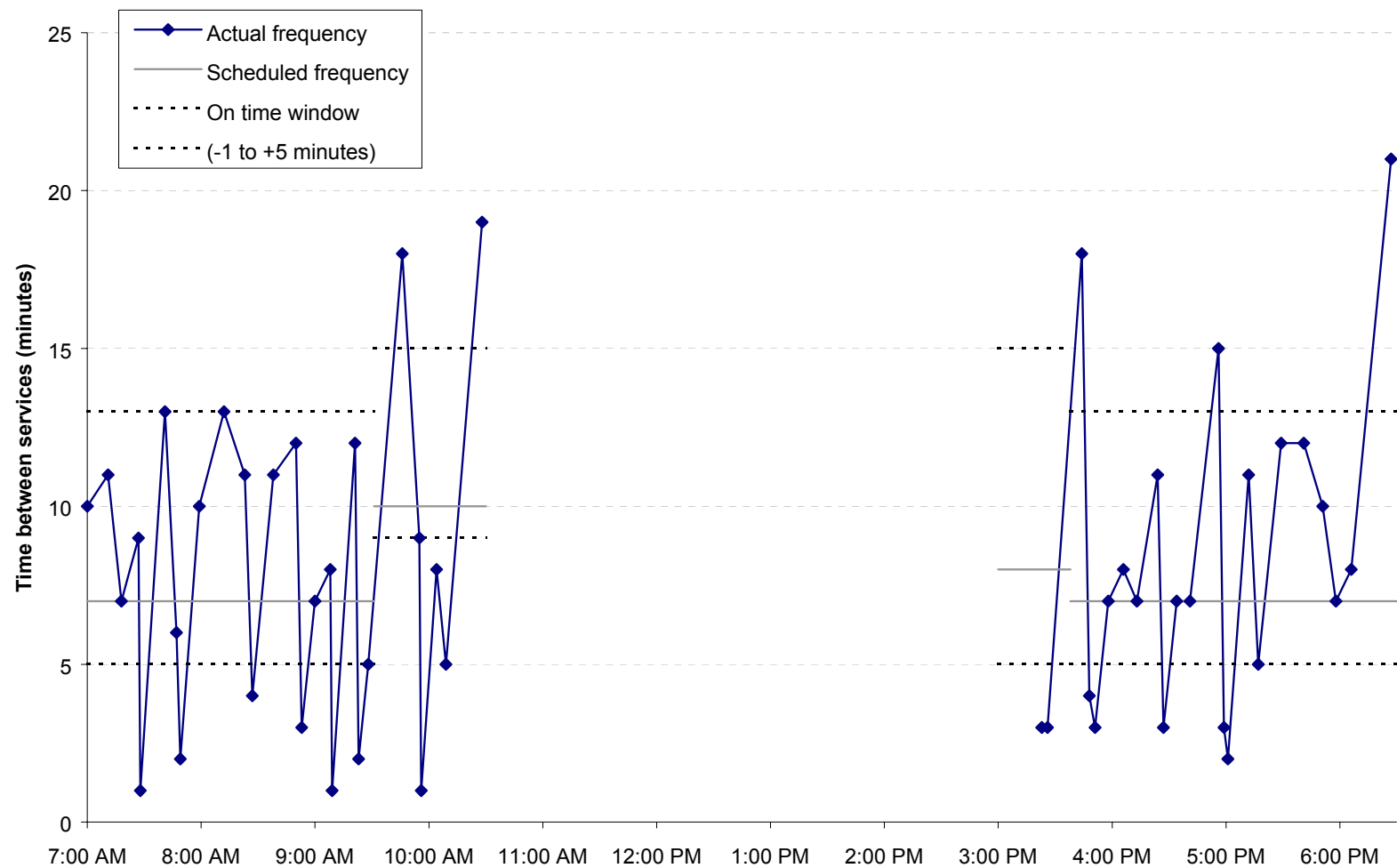
In the afternoon peak, an average of 4.7 passengers boarded each trip, and 9.7 alighted.

The average load in the morning peak was 130.7 passengers. Since most trains were two-car, Muni maximum load standards (119 for one-car trains, 238 for two-car trains) were not exceeded. However, the standards were exceeded on a number of individual trips, at 8:12 AM (load of 245 passengers), 8:50 AM (load of 250) and 8:53 AM (load of 260).

In the afternoon peak, the average load was 60.2, with a maximum of 105.

According to Muni, the maximum load point in the morning (7-9 AM) is on arrival at Market and Van Ness (i.e. on departure from Church and Duboce), with an average load of 106.8 passengers. In the afternoon (4-6 PM), it is also on arrival at Market and Van Ness, with an average load of 46.

Figure 24 Service frequency. N-Judah eastbound



Conclusions

Proposition E, passed by voters in 1999, sets a goal that 65% of runs should be on time. While this measures the on time performance of each trip, and is not strictly the same as the performance measures based on headways used here, it is a useful guide for comparison purposes. Only 4 of the 23 lines surveyed (counting each direction as a separate line) met this standard – the 7-Haight eastbound, the 66-Quintara eastbound, the F-Market eastbound and the N-Judah westbound. By this measure, then, on time performance was poor.

More than half the lines surveyed experienced significant gaps between trips, of 25 minutes or more, at some point during the survey period. On some lines, such as the 22-Fillmore, there were gaps of nearly an hour. On the 37-Corbett line, there was a gap between trips of more than two hours. In almost all cases, the delays were due to bunching, rather than the total number of trips being lower than scheduled.

These results are supported by data on headway adherence from the Transportation Authority. These show that only one line met the 65% standard for on time performance – the 66-Quintara westbound. For many of the light rail lines, fewer than 10% of trips arrived on time. While the results are not strictly comparable – the Transportation Authority uses a stricter on-time standard (1 minute early to 3 minutes late), and data were collected at the maximum load point rather than in the Market/Octavia area – they confirm the general picture of poor performance.

Regarding passenger loads, average loads for all lines were within the maximum load standards set out in Muni's strategic plan. However, loads on a number of individual trips exceeded these standards. This was particularly the case in the morning peak on the eastbound lines running along Haight Street, and on the subway lines at Church Street Station and the N-Judah (eastbound in the morning peak and westbound in the afternoon peak). On some trips, there was insufficient capacity for all passengers who wished to board. The most spare capacity was available on the 37-Corbett, F-Market and J-Church lines and, to a lesser extent, the 22-Fillmore.

According to Muni data, all the lines serving Market/Octavia meet the maximum load standards at the maximum load point. This suggests that at least some spare capacity is available on all lines serving the neighborhood. However, the maximum load data is given as an average for a 1 or 2 hour period, and individual trips may still be overcrowded. In addition, as noted above, these data represent the maximum load point as designated by Muni, generally for historical reasons, which may not be the same as the actual maximum load point on the line.

Better Neighborhoods 2002

Market/Octavia Study Area – Pointcheck Surveys

SAN FRANCISCO PLANNING DEPARTMENT

Market/Octavia Transit Appendix Transit B

San Francisco Better Neighborhoods 2002 Transit Survey

Please help us plan access improvements in your neighborhood.

1. Where did you begin this one-way trip? Please give the closest intersection or place name (e.g.-Market & Duboce, SFSU) and City (e.g.-San Francisco) to the place where you first began this one-way trip:

Intersection/Place _____ City _____

2. What is the primary purpose of your current trip? If you are returning home, what was the purpose of this trip? (Please check one)

_____ Commuting to/from work _____ Other work related trip _____ Shopping
_____ Commuting to/from school _____ Recreation/Entertainment _____ Other
_____ Personal Errand _____ Medical/Dental Appt.

3. How did you get to this location? (Check all that apply)

_____ Walking _____ Bus _____ BART _____ Drive/Park
_____ Caltrain _____ Bike _____ Other

4. How far did you travel to get to this transit stop or station?

_____ < 1 block _____ 3-6 blocks _____ More than a mile
_____ 2-3 blocks _____ About a mile

5. How will you get from this bus or train to your ultimate destination? (Check all that apply)

_____ Walking _____ Bus _____ BART
_____ Caltrain _____ Bike _____ Other

6. How far will you travel from this bus or train to your ultimate destination?

_____ < 1 block _____ 3-6 blocks _____ More than a mile
_____ 2-3 blocks _____ About a mile

7. What is the ultimate destination of this one-way trip. Please give the closest intersection or place name (e.g.-Market & Duboce, SFSU) and City (e.g.-San Francisco) to your final destination:

Intersection/Place _____ City _____

To be completed by surveyor		
Time:	Location:	Boarding or Alighting?: