

MEMORANDUM

To: Blaine Merker, Gehl

From: Adam Dankberg, P.E., Kimley-Horn and Associates, Inc.

Date: July 29, 2021

Subject: Castro Pedestrian Mall Feasibility Study – Traffic and Circulation Analysis

Introduction

The City of Mountain View (City) and Gehl directed Kimley-Horn to evaluate the traffic and circulation impacts of three proposed design alternatives for the 100 block of Castro Street. Each of the alternatives reflect street modifications and reconfigurations to improve the pedestrian thoroughfare in downtown Mountain View. The proposed geometry and operational changes are anticipated to impact traffic patterns for study intersections primarily along W. Evelyn Avenue and Villa Street, between Shoreline Boulevard and View Street.

This memorandum has been prepared to document the circulation implications of the three concept design alternatives, considering implications to vehicle, bicycle, pedestrian, and transit circulation. The sections below summarize the design considerations, methodology, analysis, results, and impacts of the various design alternatives.

Background

Castro Street is Mountain View's oldest commercial corridor and is considered a central destination for commercial, office, and retail activity. The 100 to 300 blocks of Castro Street predominantly feature restaurant and retail establishments and then transitions to more office, recreational, and municipal spaces progressing further south along the corridor.

The northern end of Castro Street is situated adjacent to the Mountain View Transit Center, which is currently undergoing improvements to improve safety, station capacity, and multimodal access and mobility under the Mountain View Transit Center Master Plan, approved by the City Council in May 2017.

GRADE SEPARATION AND ACCESS PROJECT (GSAP)

As the first component of the Mountain View Transit Center Master Plan to be implemented, the currently in-design Grade Separation and Access Project (GSAP) will improve safety, capacity, and multimodal access to the Transit Center and downtown Mountain View. The transit center is adjacent to the Moffett Boulevard/Castro Street/Central Expressway intersection that is congested today and impacted by frequent railroad gate interruptions, limiting pedestrian, bicycle, and vehicle movements across Central Expressway. Conditions are expected to degrade further with the plans for increased Caltrain and new High-Speed Rail train service, making it more difficult to cross Central Expressway.

Peak hour rail crossings of Castro Street are expected to double with Caltrain electrification and High-Speed Rail, which will further limit vehicle access across the current track crossing and add more barriers to pedestrian and bicycle movements. The GSAP will present pedestrians and bicyclists with a safer crossing and fewer delays, and includes the following roadway and circulation modifications identified in the Transit Center Master Plan:

- Closure of the south leg of the Moffett Boulevard/Castro Street/Central Expressway intersection to vehicular traffic
- Replacement of street-level pedestrian crossings at the Moffett Boulevard/Castro Street/Central Expressway intersections with underground, grade-separated pathways and vertical circulation
- Creation of a vehicle ramp connecting W. Evelyn Avenue and Shoreline Boulevard
- Enhanced pedestrian, bicycle, and transit connections to area trails including Shoreline Trail and the Stevens Creek Trail
- Additional bus/shuttle pick-up and drop-off capacity in the vicinity of the Transit Center

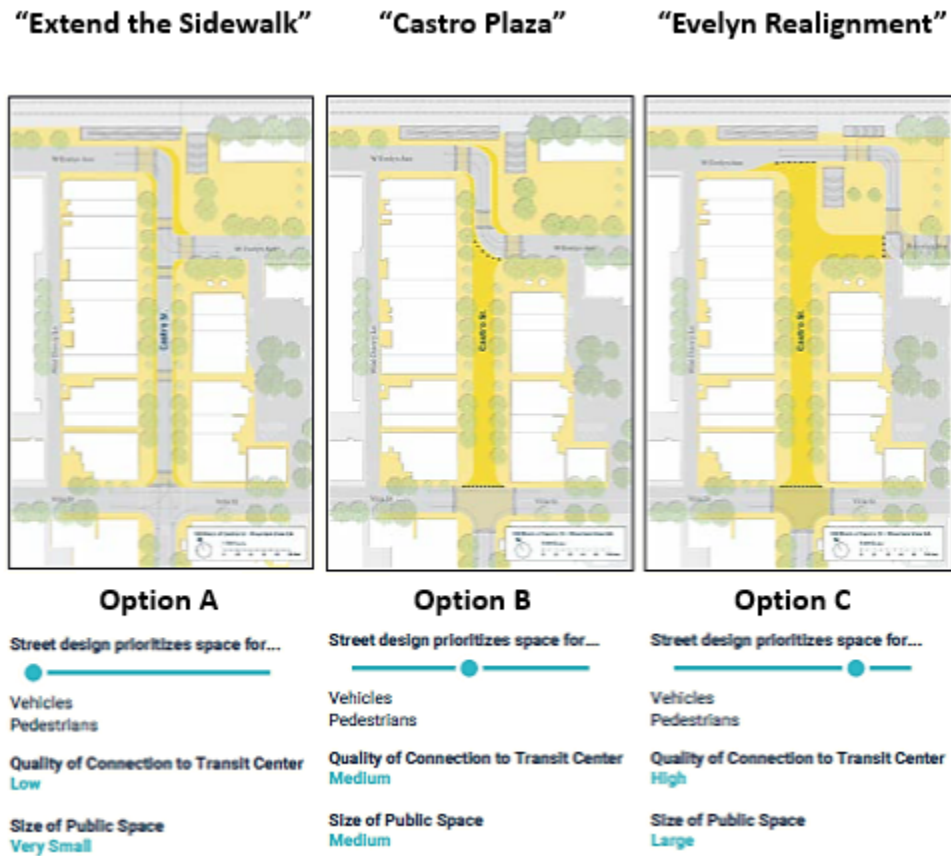
With the modification to Castro Street, W. Evelyn Avenue would be reconnected as an east-west through street, enhancing the downtown street grid network, and allowing the 100 block of Castro Street to be more pedestrian-oriented. A more significant redesign of the 100 block of Castro Street, being considered as part of the Castro Pedestrian Mall Feasibility Study, would complement the enhanced pedestrian and cyclist pathways associated with the Mountain View Transit Center Master Plan and GSAP.

Castro Pedestrian Mall Design Alternatives

Figure 1 illustrates three preliminary concepts presented for analysis:

- Option A: Extend the Sidewalk
- Option B: Castro Plaza
- Option C: Evelyn Realignment

Figure 1: Preliminary Concepts



OPTION A

Option A widens the sidewalk and shifts the curb line along Castro Street to accommodate more pedestrian traffic. With the narrowing of Castro Street, southbound lefts at the intersection of Castro Street and Villa Street would be restricted. All other circulation movements would remain as being advanced in the GSAP. Option A does not include additional facilities nor enhancements to existing bicycle connections. Bicycle access would remain unchanged and share a road with vehicles travelling along the 100 block of Castro Street.

OPTION B

Option B closes Castro Street to vehicular traffic between W. Evelyn Avenue and Villa Street to create a pedestrian mall in this segment. The two W. Evelyn Avenue legs will remain connected where Castro Street is currently located. Traffic control is no longer needed for auto movements between W. Evelyn Avenue and Castro Street but may be provided for pedestrian crossings. Auto movements on Castro Street north of Villa Street would be diverted to nearby streets. Considerations for emergency and service vehicle access and configuration of bicycle accommodations through the pedestrian mall would be determined at a later stage.

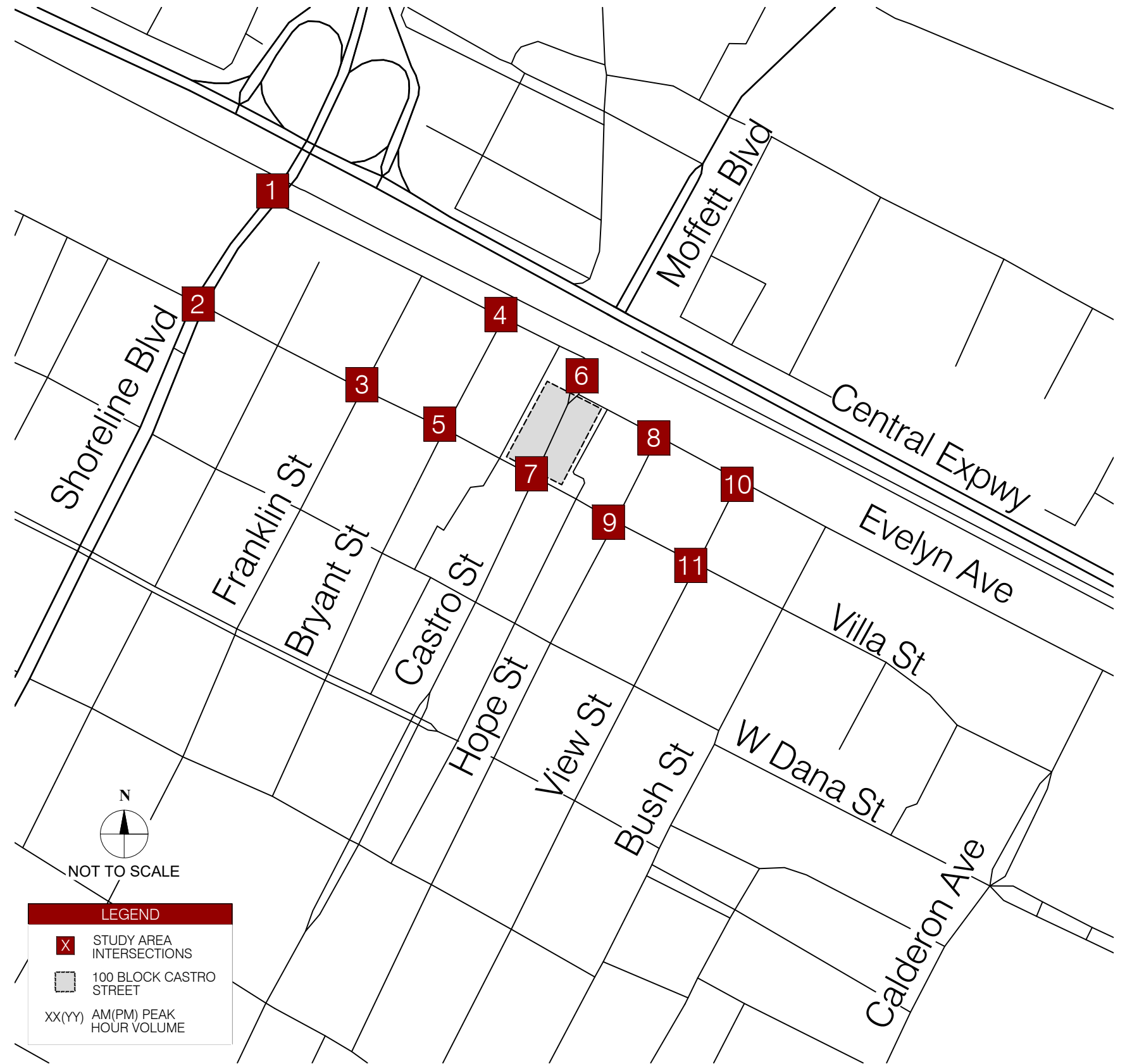
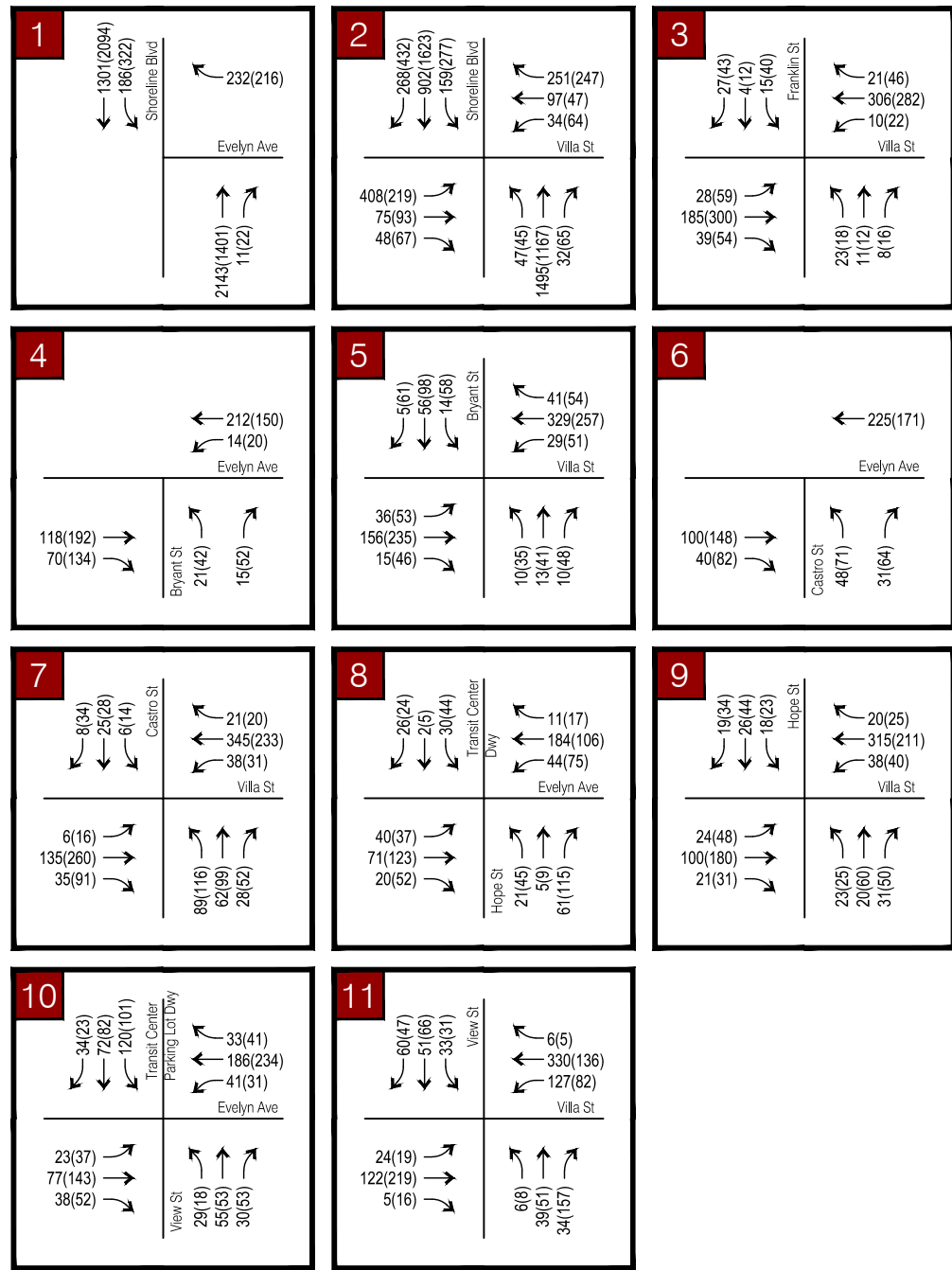
OPTION C

Option C is similar to Option B but modifies the alignment of W. Evelyn Avenue. Instead of using the current Castro Street alignment for the W. Evelyn Avenue connection, the road would be shifted east to align with Blossom Lane. The GSAP grand staircase entrance into the undercrossings would also shift south of W. Evelyn Avenue to provide an alternative pathway to the at-grade street crossing. This would allow for a larger contiguous pedestrian space between the new pedestrian/bicycle undercrossing and the 100 block of Castro Street. Considerations for emergency and service vehicle access and configuration of bicycle accommodations through the pedestrian mall would be determined at a later stage.

Analysis Methodology

The traffic analysis utilized AM, Midday, and PM peak hour volumes and lane geometry from the Cumulative Plus Project conditions from the *Mountain View Transit Center Grade Separation Traffic Impact Analysis* (GSAP TIA) dated April 2019. **Figure 2** and **Figure 3** illustrates the Cumulative Plus Project scenario peak hour volumes from the GSAP that were used as a baseline for the Castro Pedestrian Mall analysis. It should be noted that these volumes account for the redistribution of trips associated with the closure of the at-grade crossing at Castro Street and Moffett Boulevard and the construction of the W. Evelyn Avenue ramp at Shoreline Boulevard. Consistent with the GSAP TIA, level of service (LOS) was conducted using the Highway Capacity Manual 2000 (HCM 2000) methodology in *Traffix* software.

Table 1 lists the 11 study intersection that were selected from the GSAP TIA. These intersections were chosen because they would be impacted by shifts in traffic in one or more of the proposed Castro Pedestrian Mall alternatives.



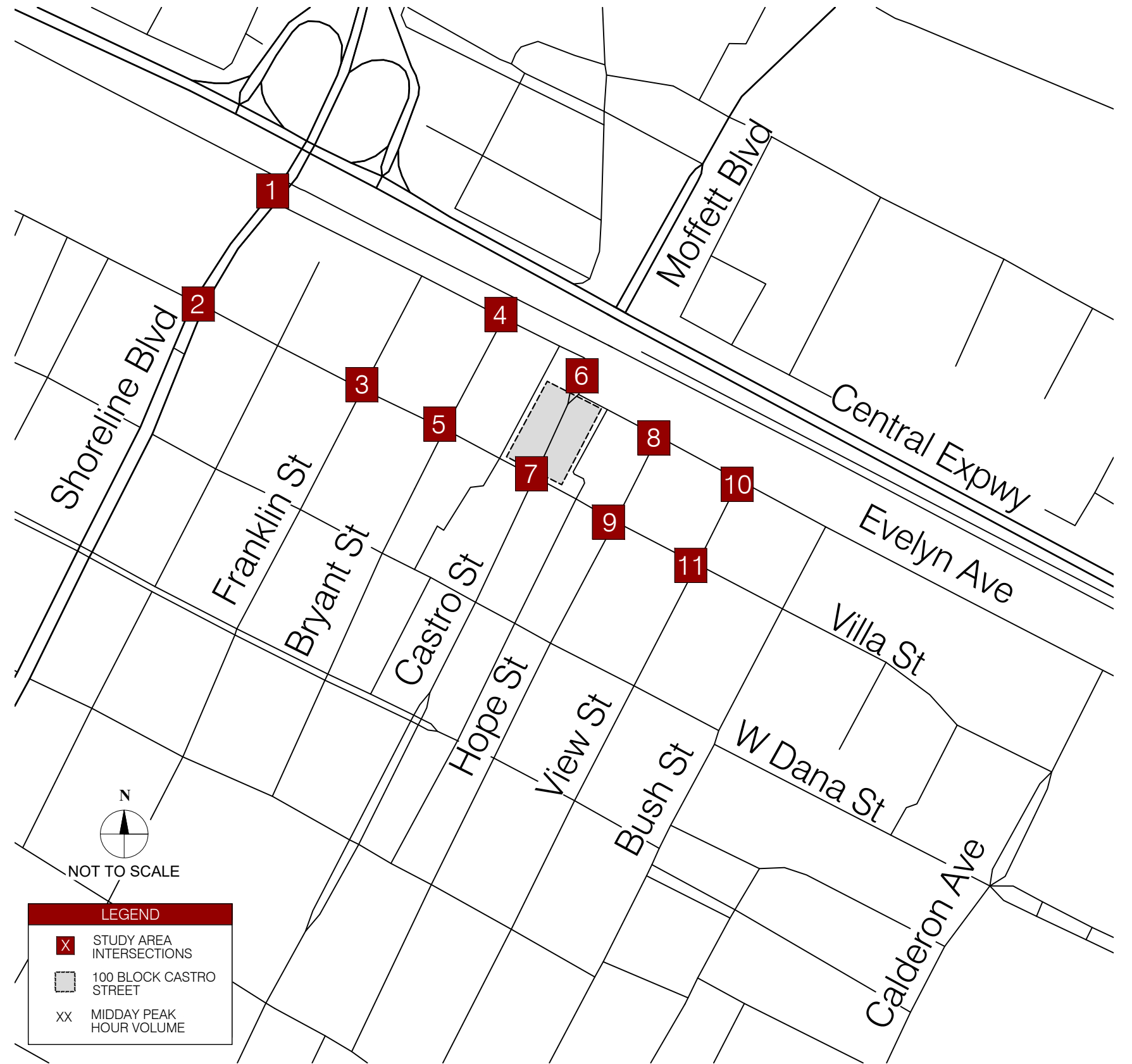
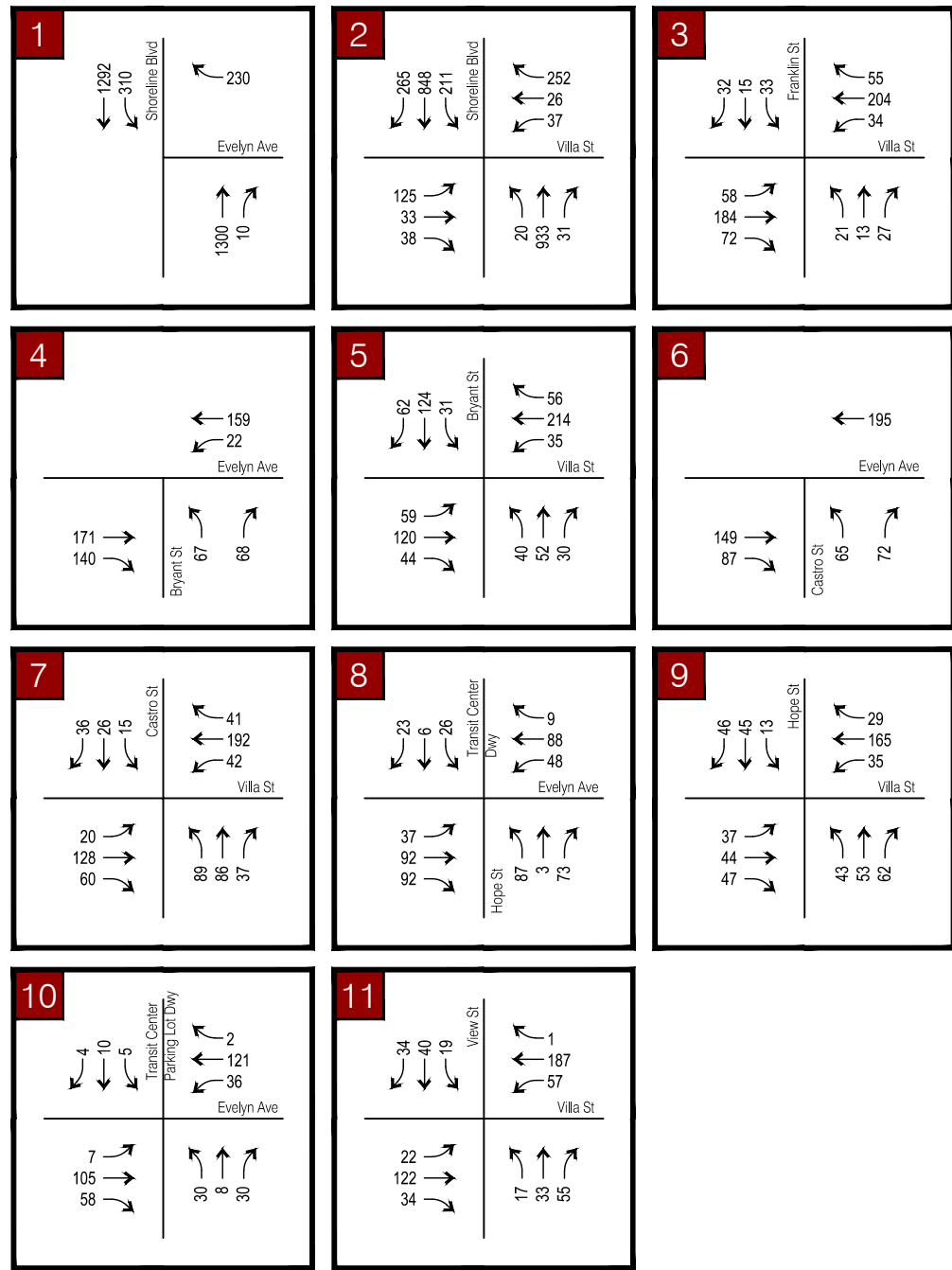


Table 1: Castro Pedestrian Mall Study Intersections

# ¹	Intersection
1	Shoreline Boulevard & W. Evelyn Avenue
2	Shoreline Boulevard & Villa Street
3	Franklin Street & Villa Street
4	Bryant Street & W. Evelyn Avenue
5	Bryant Street & Villa Street
6	Castro Street & W. Evelyn Avenue
7	Castro Street & Villa Street
8	Hope Street & W. Evelyn Avenue
9	Hope Street & Villa Street
10	View Street & W. Evelyn Avenue
11	View Street & Villa Street

¹Intersection numbering has been modified from the Mountain View Transit Center Grade Separation Traffic Impact Analysis (GSAP TIA), dated April 2019

Option A

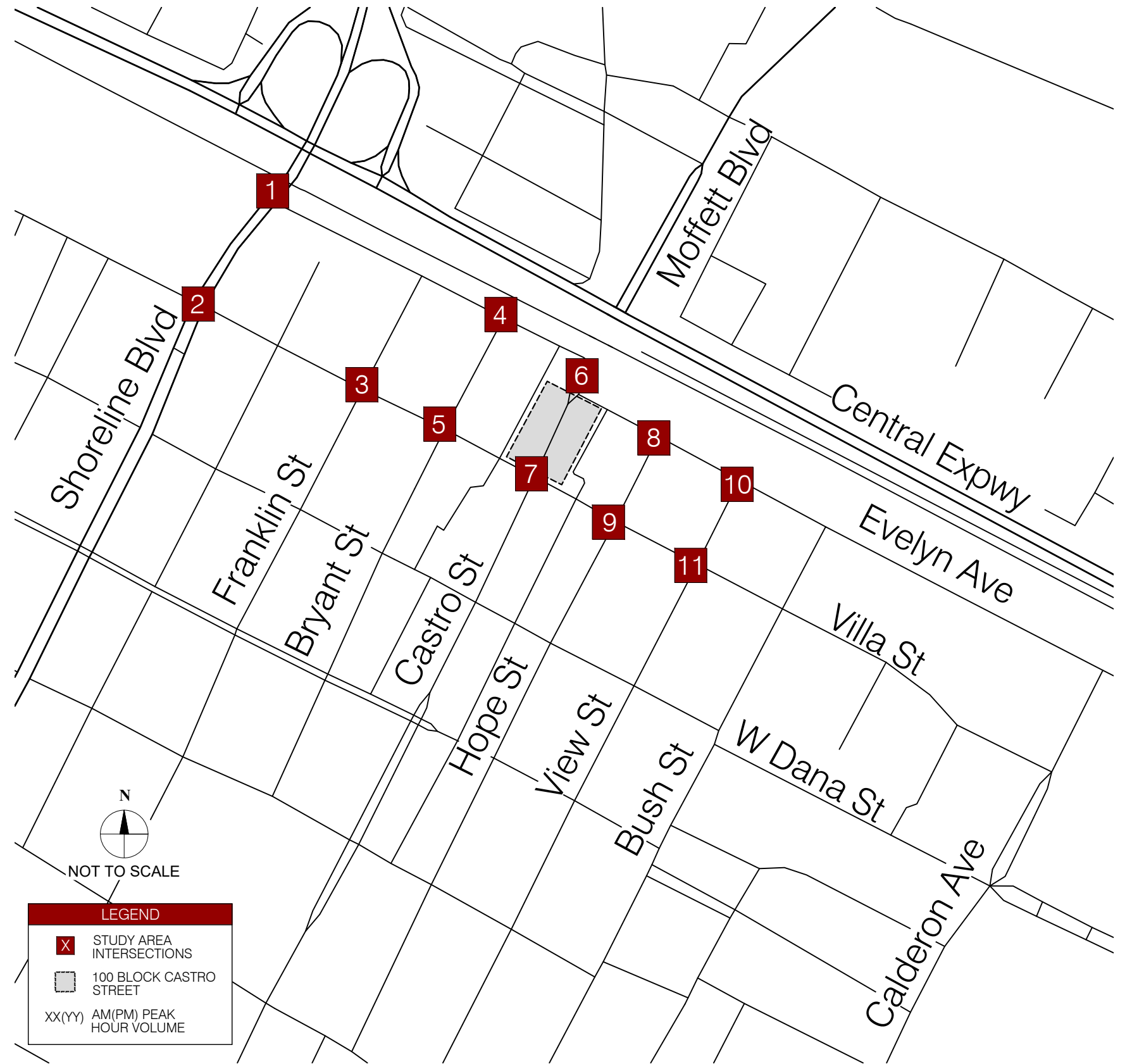
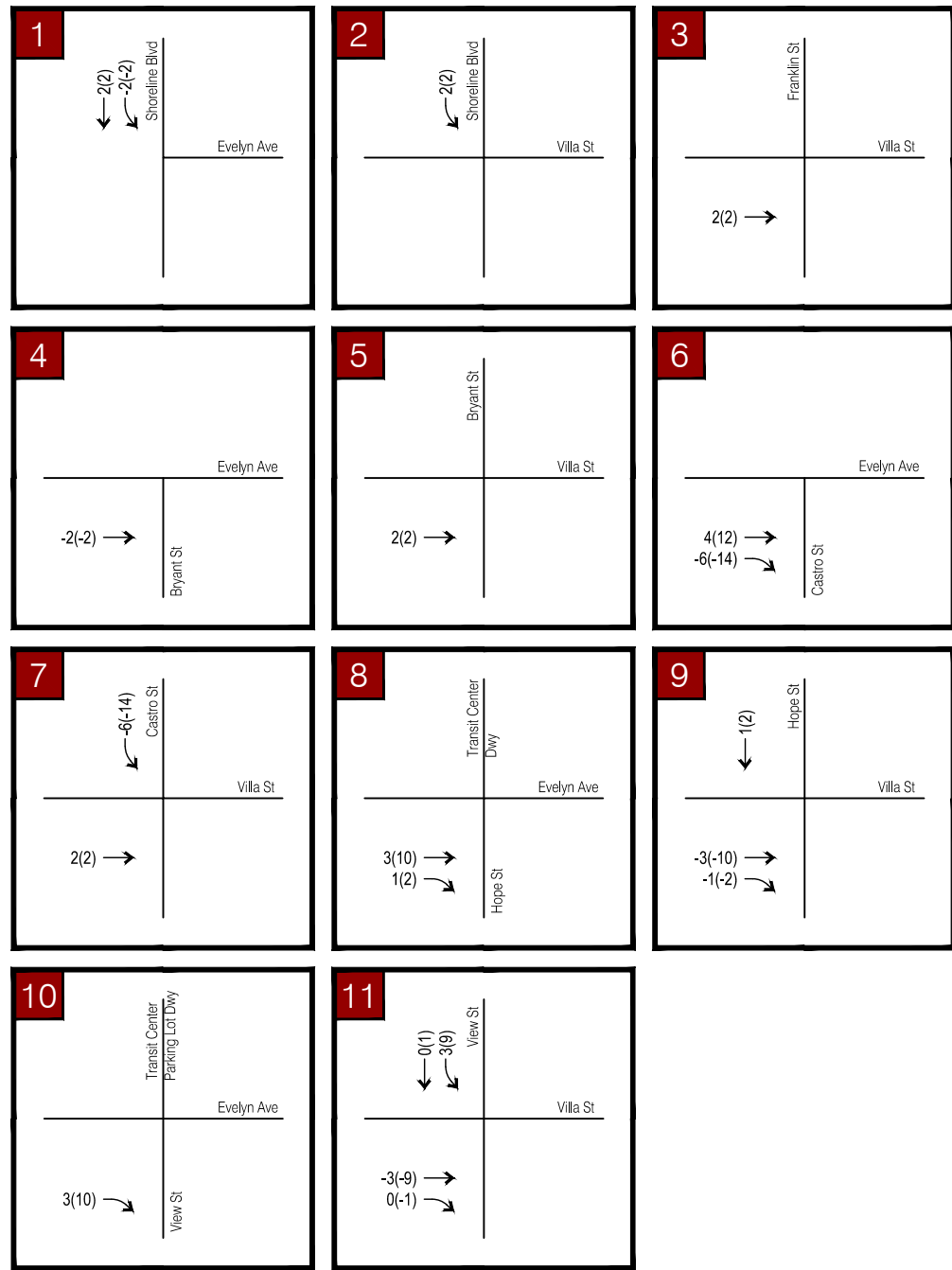
GEOMETRIC MODIFICATION

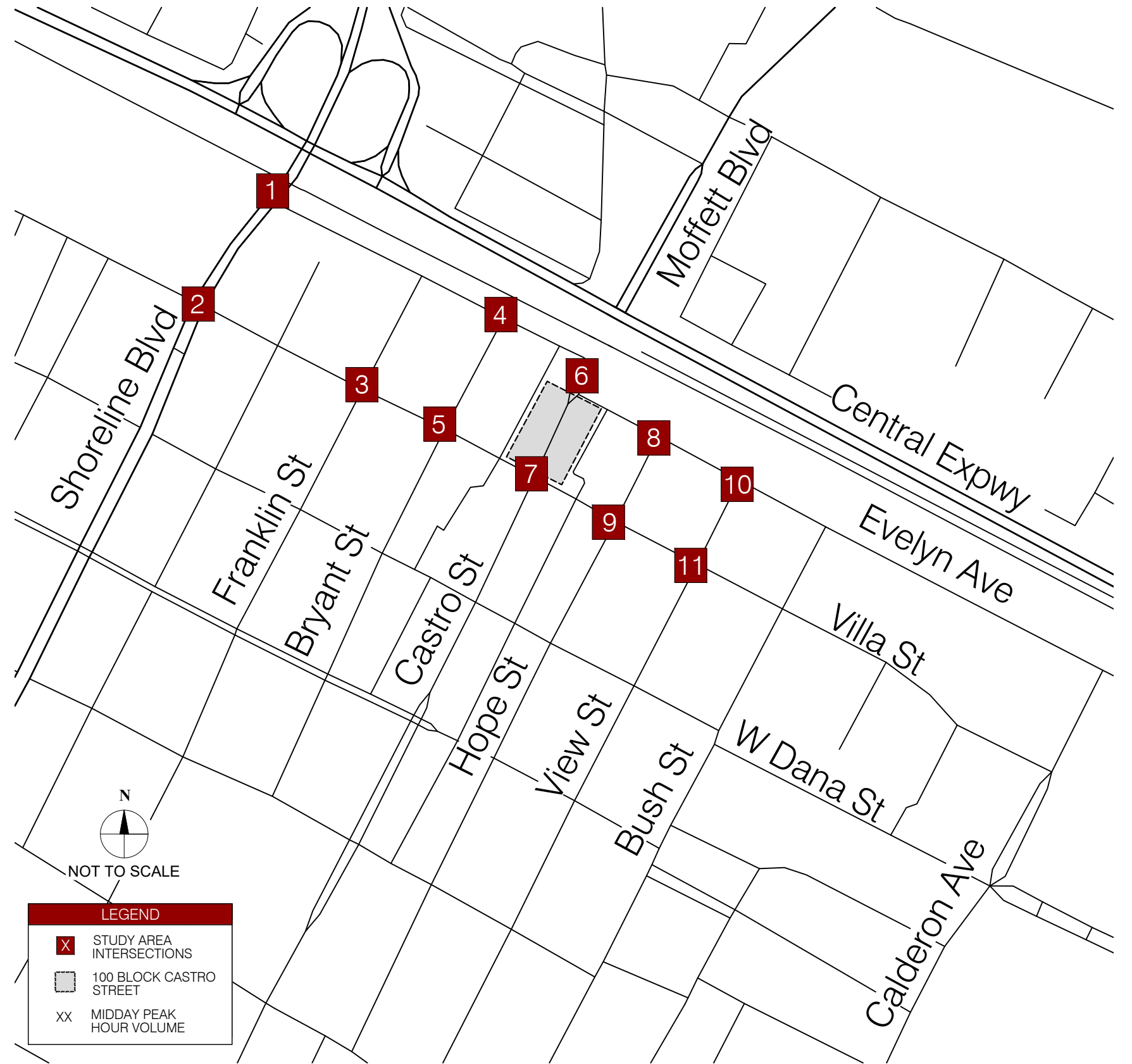
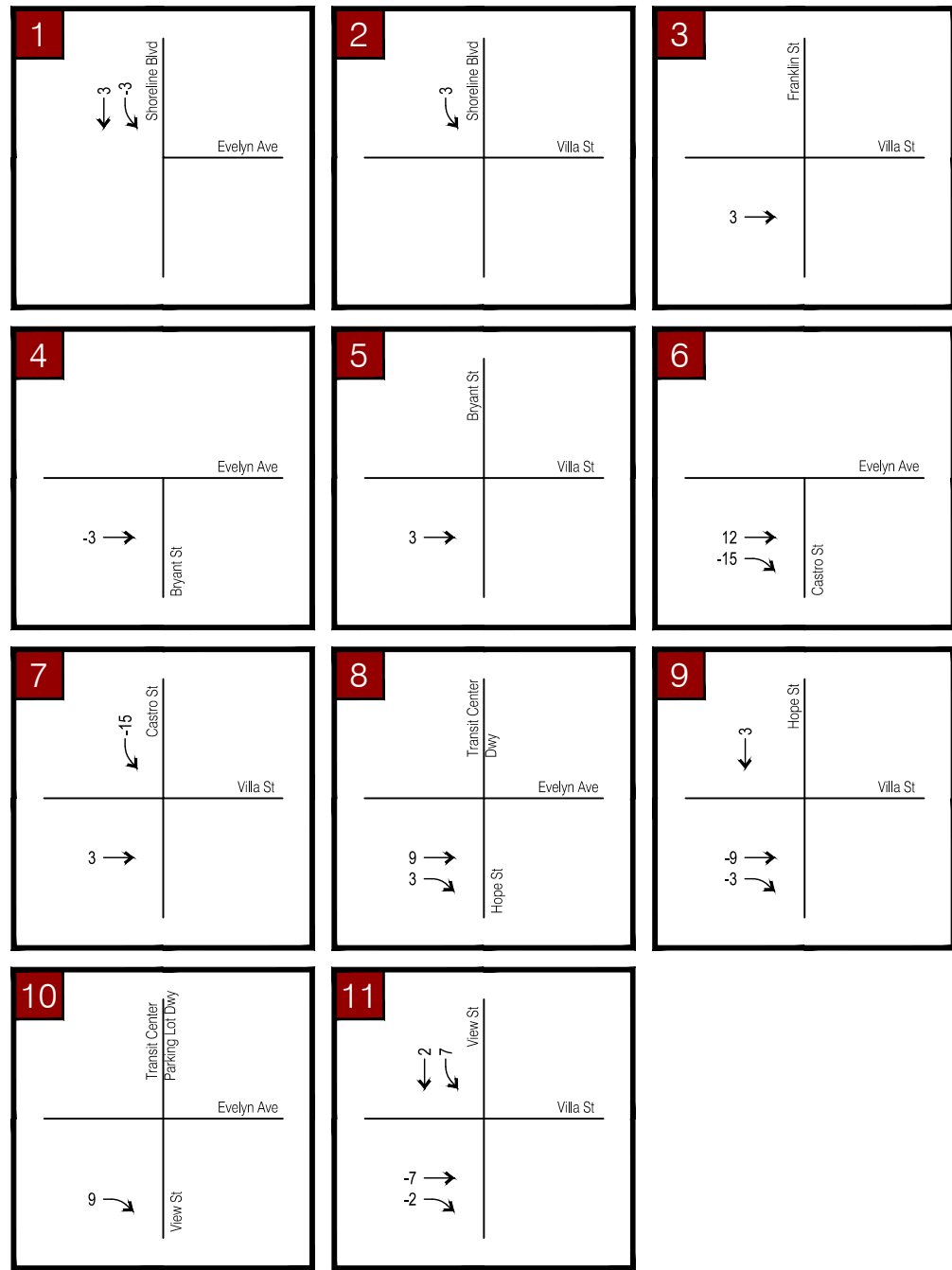
Option A narrows the curb-to-curb width of Castro Street and widens the sidewalk within the 100 block of Castro Street. The existing three-lane cross-section would be narrowed to two lanes within this block. The existing southbound left-turn lane from Castro Street to Villa Street would be removed. As a result, the southbound left-turn movement would be precluded. No changes are assumed to the northbound left-turn movement at this intersection.

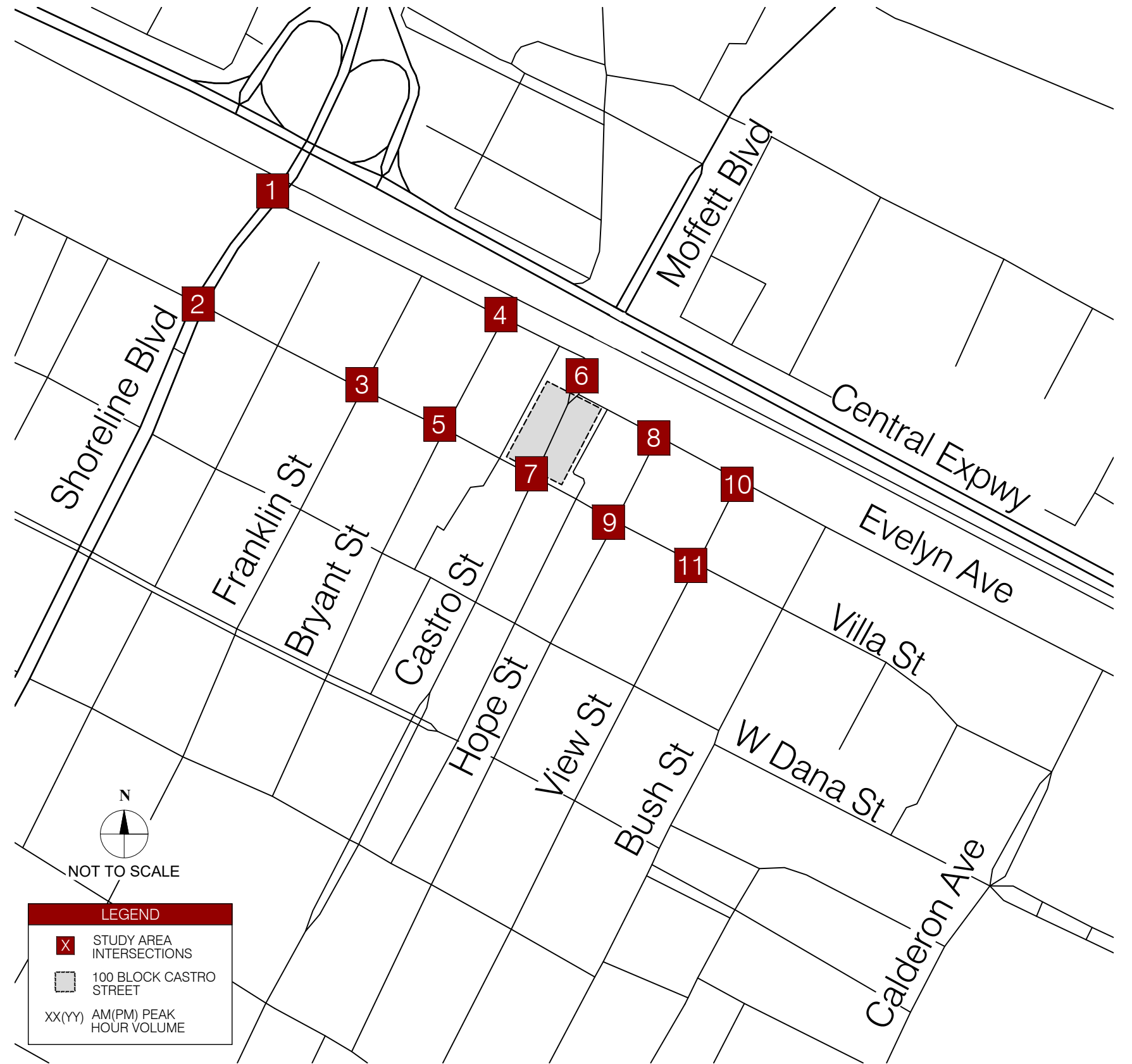
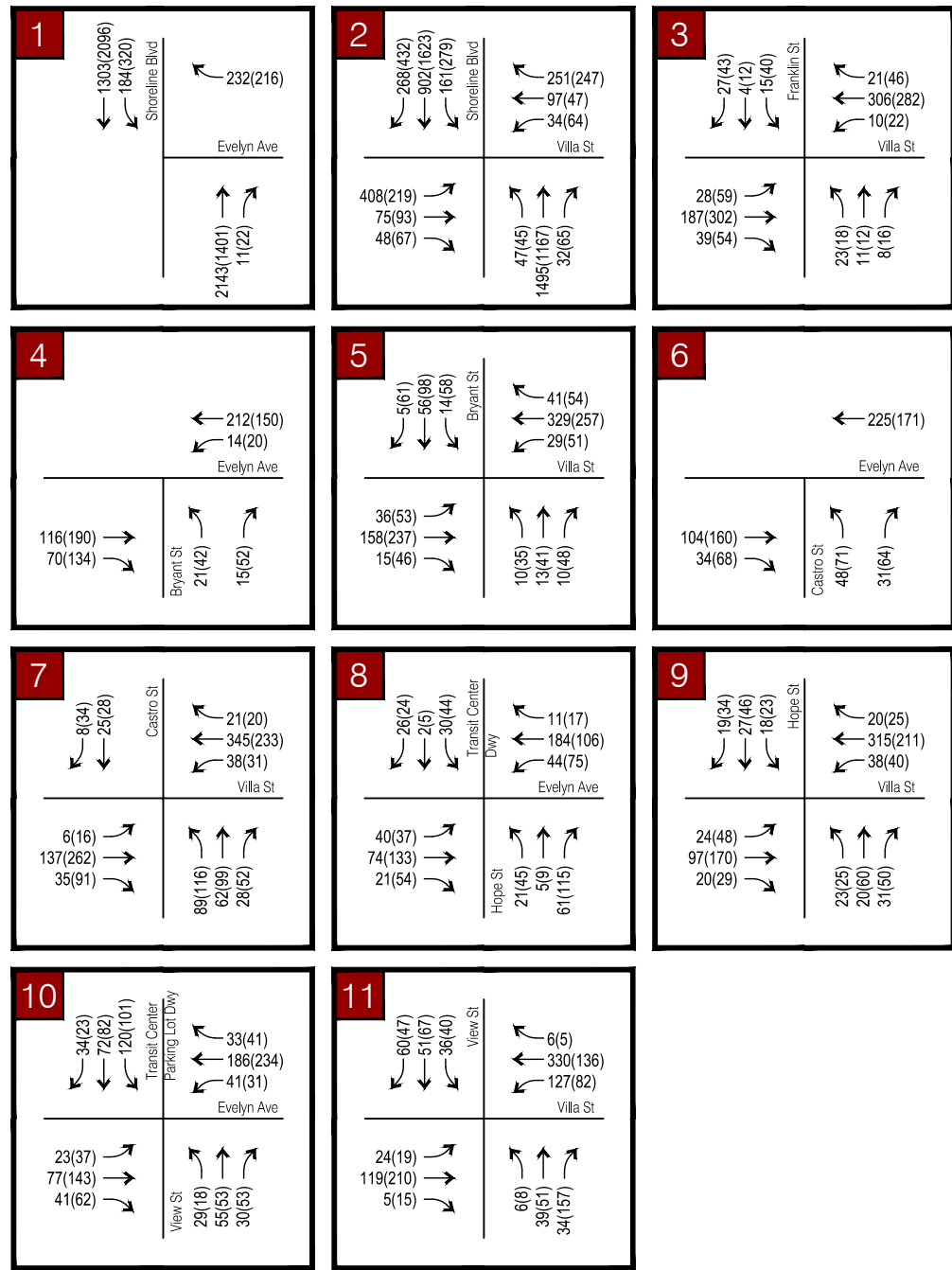
VEHICLE CIRCULATION

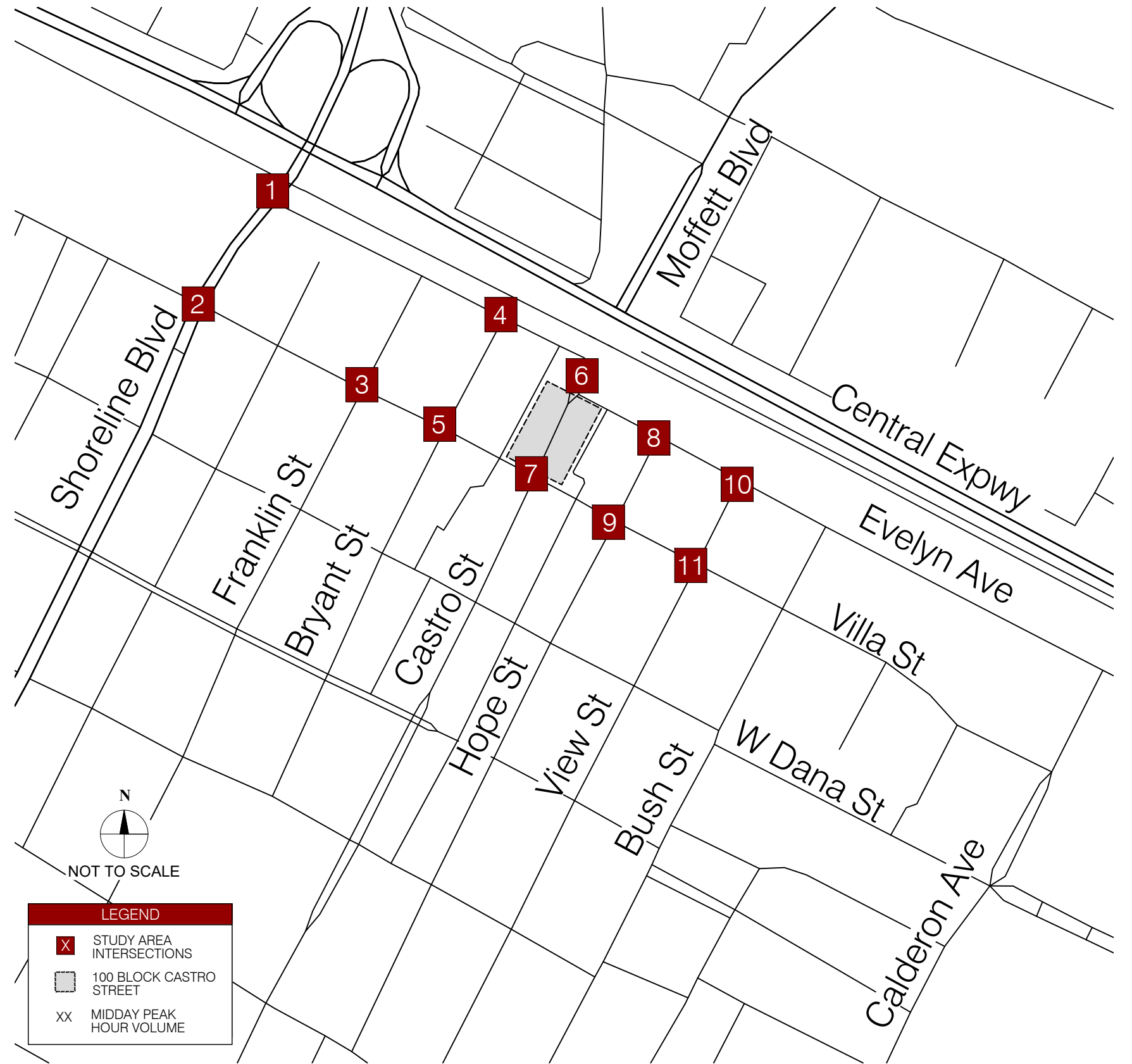
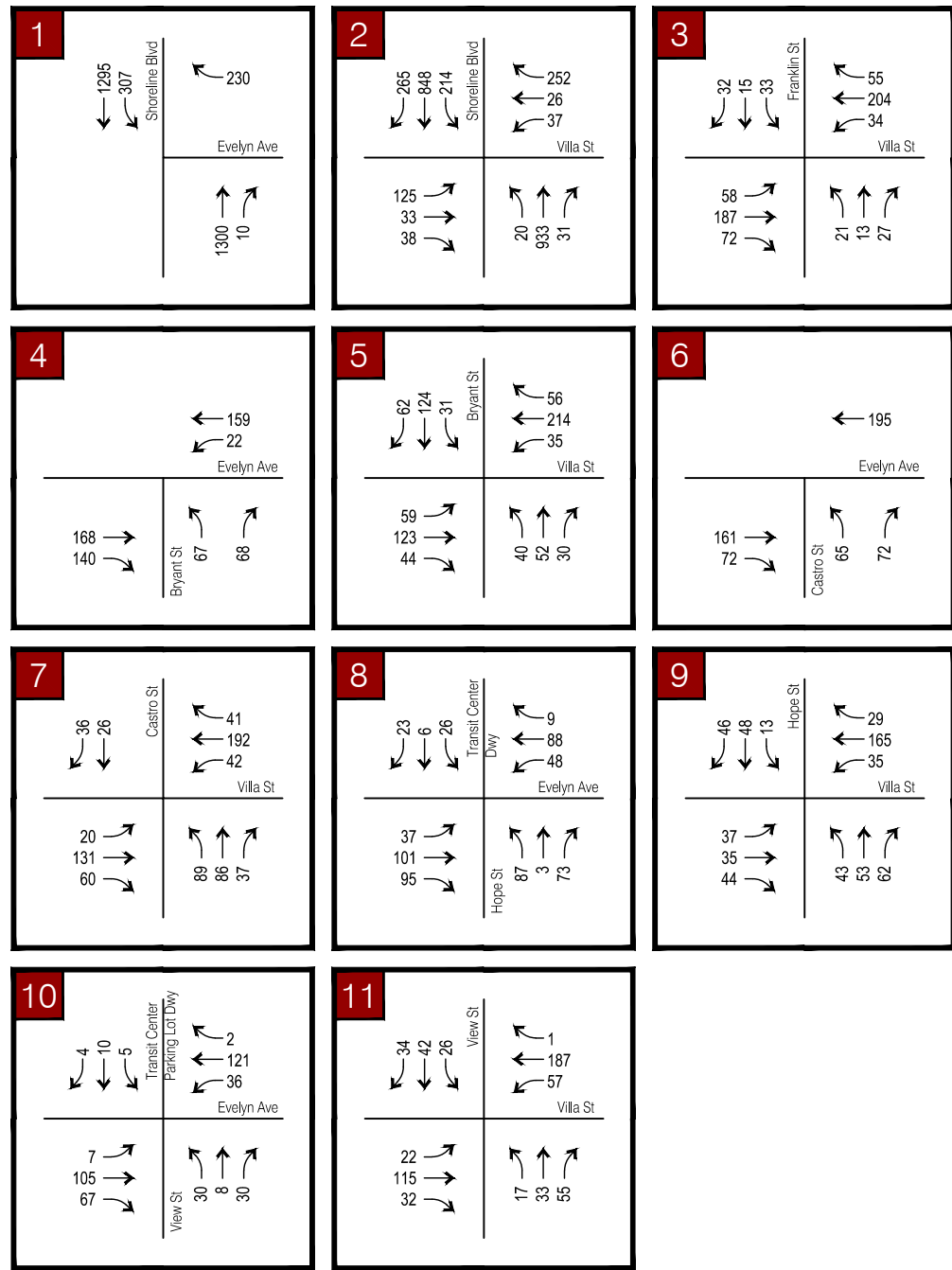
Redistribution of Vehicular Traffic

Figure 4 and **Figure 5** illustrates the redistribution of traffic for Option A. The Cumulative Plus Project volumes from the GSAP TIA were redistributed to account for the removal of the southbound-left turning movement at Castro Street and Villa Street. It is anticipated that 80% of traffic will remain on W. Evelyn Avenue and make an eastbound right turn at either Hope Street or View Street to access destinations in the downtown area along W. Dana Street, Hope Street, View Street, Bush Street, or Calderon Avenue. The remaining 20% assumes a portion of drivers driving along Shoreline Boulevard will choose to make a turn onto Villa Street instead of W. Evelyn Avenue. The final Option A turning movement volumes that were used for evaluations are presented in **Figure 6** and **Figure 7**.









Level of Service

Table 2 summarizes the level of service for Option A. All study intersections function within acceptable LOS standards under this alternative. As Option A does not create significant congestion nor delay impacts on any of the study intersections, no additional roadway modifications are required. Analysis reports are provided in **Attachment A**.

Parking Impacts

As part of this option, in order to expand the pedestrian realm, seven (7) street parking spaces would be removed from the east side of Castro Street. These vehicles would need to find parking in other locations within the downtown area.

Other Vehicle Circulation Benefits/Concerns

Widening sidewalks as opposed to replacing the entire roadway with a pedestrian mall allows for two-way vehicular traffic to continue along the 100 block of Castro Street. Maintaining access minimizes potential traffic impacts that would be absorbed by nearby streets. However, narrower streets and anticipated increases in pedestrian and cyclist activity may lead to an increase in pedestrian-vehicle and bicycle-vehicle conflicts along the block where cyclists are expected to share the lane with autos. The riding of bicycles on sidewalks are currently prohibited in downtown Mountain View, but additional options for bicycle connectivity through this block should be considered in future project phases.

PEDESTRIAN CIRCULATION

Reconfiguration of the 100 block under Option A includes widening the sidewalk on both sides of the street to provide approximately 8-feet of additional space. In addition, the relocation of the existing curb provides a much more functional street-life area that can be used by restaurants and as public spaces. The wider streets are expected to increase the character of the pedestrian environment, encourage more active street life, and improve the desirability of outdoor eating spaces along Castro Street. Option A improvements also include providing universal access to flex zones and patio seating on both sides of Castro Street.

However, the reconfiguration maintains limited crossings for pedestrians and provides only a minimal increase in public space and programmable area. Anyone travelling between downtown Mountain View and the Transit Center or Moffett Boulevard will have to cross W. Evelyn Avenue using an at-grade crosswalk. There are four crosswalks directing pedestrian flow across Castro Street; two of these crossings are located at the intersection with the east leg of W. Evelyn Avenue, one is a mid-block crossing between W. Evelyn Avenue and Villa Street, and one is located at the intersection of Castro Street and Villa Street. Pedestrians may also cross W. Evelyn Avenue at two locations near the Castro Street intersection. It should be noted that the location and number of these crosswalks are subject to change during later design stages.

Table 2: Option A Intersection Level of Service Summary

#	Intersection	LOS Criteria	Control	Option A											
				AM Peak				PM Peak				Midday Peak			
				LOS	Delay (sec) ¹	v/c Ratio	Crit. Delay	LOS	Delay (sec) ¹	v/c Ratio	Crit. Delay	LOS	Delay (sec) ¹	v/c Ratio	Crit. Delay
1	Shoreline Blvd & Evelyn Ave	D	Signal	B	16.1	0.674	21.5	B	17.2	0.608	28.0	B-	19.5	0.587	28.5
2	Shoreline Blvd & Villa St	D	Signal	C	27.4	0.670	29.4	C	24.2	0.631	19.6	C+	22.4	0.508	29.7
3	Franklin St & Villa St ²	E	AWSC	A	9.7	0.415	9.7	B	11.8	0.546	11.8	A	10.0	0.406	10.0
4	Bryant St & Evelyn Ave ²	E	SSSC	B	11.6	0.042	1.2	B	13.4	0.096	2.4	C	18.7	0.199	4.3
5	Bryant St & Villa St ²	E	AWSC	B	10.4	0.493	10.4	B	13.1	0.558	13.1	B	10.9	0.446	10.9
6	Castro St & Evelyn Ave ²	E	Signal	B	12.4	0.309	12.4	B	12.6	0.377	12.6	B	12.7	0.399	12.7
7	Castro St & Villa St ²	E	Signal	A	9.7	0.330	8.4	B+	11.1	0.351	10.9	B	13.3	0.279	13.6
8	Hope St & Evelyn Ave ²	E	Signal	B	14.1	0.137	18.2	B	16.3	0.258	18.6	B	15.4	0.223	16.3
9	Hope St & Villa St ²	E	AWSC	A	9.9	0.464	9.9	A	10.0	0.382	10.0	A	8.9	0.306	8.9
10	View St & Evelyn Ave ²	E	AWSC	A	10.0	0.371	10.0	B	11.0	0.451	11.0	A	8.1	0.205	8.1
11	View St & Villa St ²	E	AWSC	B	12.4	0.622	12.4	B	10.3	0.367	10.3	A	9.1	0.327	9.1

(1) The delay for the worst movement is reported for SSSC intersections.

(2) Intersection is within the Downtown Precise Plan boundary with a LOS E threshold.

The GSAP TIA Cumulative pedestrian volumes were distributed among the six proposed crosswalk as shown in **Table 3**. Due to their proximity to both the transit center and downtown retail/restaurant uses, it is anticipated that the majority would utilize either the crosswalks on the south and east legs at the intersection of Castro Street and W. Evelyn Avenue or the mid-block crossing between W. Evelyn Avenue and Villa Street.

Table 3: Pedestrian Volumes with Option A at Street Crossings

Crosswalk Location	AM	Midday	PM
Castro Street & W. Evelyn Avenue (north leg)	63	10	37
Castro Street & W. Evelyn Avenue (south leg)	135	200	258
Castro Street & W. Evelyn Avenue (west leg)	115	10	246
Castro Street & W. Evelyn Avenue (east leg)	839	437	905
Castro Street, between W. Evelyn Avenue and Villa Street	134	200	258
Castro Street & Villa Street (north leg)	92	292	364
Total Pedestrian Street Crossings	1,378	1,149	2,068

Although signalized operations are assumed to remain as proposed by the GSAP at the Castro Street/Evelyn Avenue intersection to provide a controlled movement, pedestrian safety measures such as high visibility crosswalks, pedestrian warning signs, and leading pedestrian intervals should be considered at the intersection and along Castro Street where appropriate.

BICYCLE CIRCULATION

Option A does not include additional facilities nor enhancements to the W. Evelyn Avenue cycle track and GSAP bicycle connections. Cyclists will maintain shared use of the roadway with the proposed Class III Bicycle Route/Boulevard along Castro Street. Similar to pedestrians, cyclists will face potential conflict points crossing W. Evelyn Avenue. A narrower roadway may also present additional safety risks for cyclists. Bicycle use is currently prohibited along the sidewalk, though that restriction may be reconsidered at a later stage if this option is selected.

TRANSIT IMPACTS

Transit vehicles will continue to use Castro Street as they would with the GSAP project. While the GSAP does modify transit routes in this area, the additional removal of southbound left-turn from Castro Street to Villa Street does not further impact transit circulation with this option. Should Option A become approved for future study and implementation, further coordination with the Santa Clara Valley Transportation Authority (VTA) will be required.

Option B

GEOMETRIC MODIFICATION

In Option B, Castro Street would be closed to all auto traffic between the east leg of W. Evelyn Avenue. The provision of emergency and service vehicle access to the block will be determined at a later stage if this option is selected. The east and west leg of W. Evelyn Avenue would be connected by two 90-degree bends, which for the purposes of this analysis are assumed to be signalized with pedestrian crossings.

VEHICLE CIRCULATION

Redistribution of Vehicular Traffic

Figure 8 and **Figure 9** illustrates the redistribution of traffic for Option B. The Cumulative Plus Project volumes from the GSAP TIA were redistributed to account for the closure of turning movements at intersections #16 and #17 that lead to the 100 block of Castro Street, reflecting the changes associated with Option B.

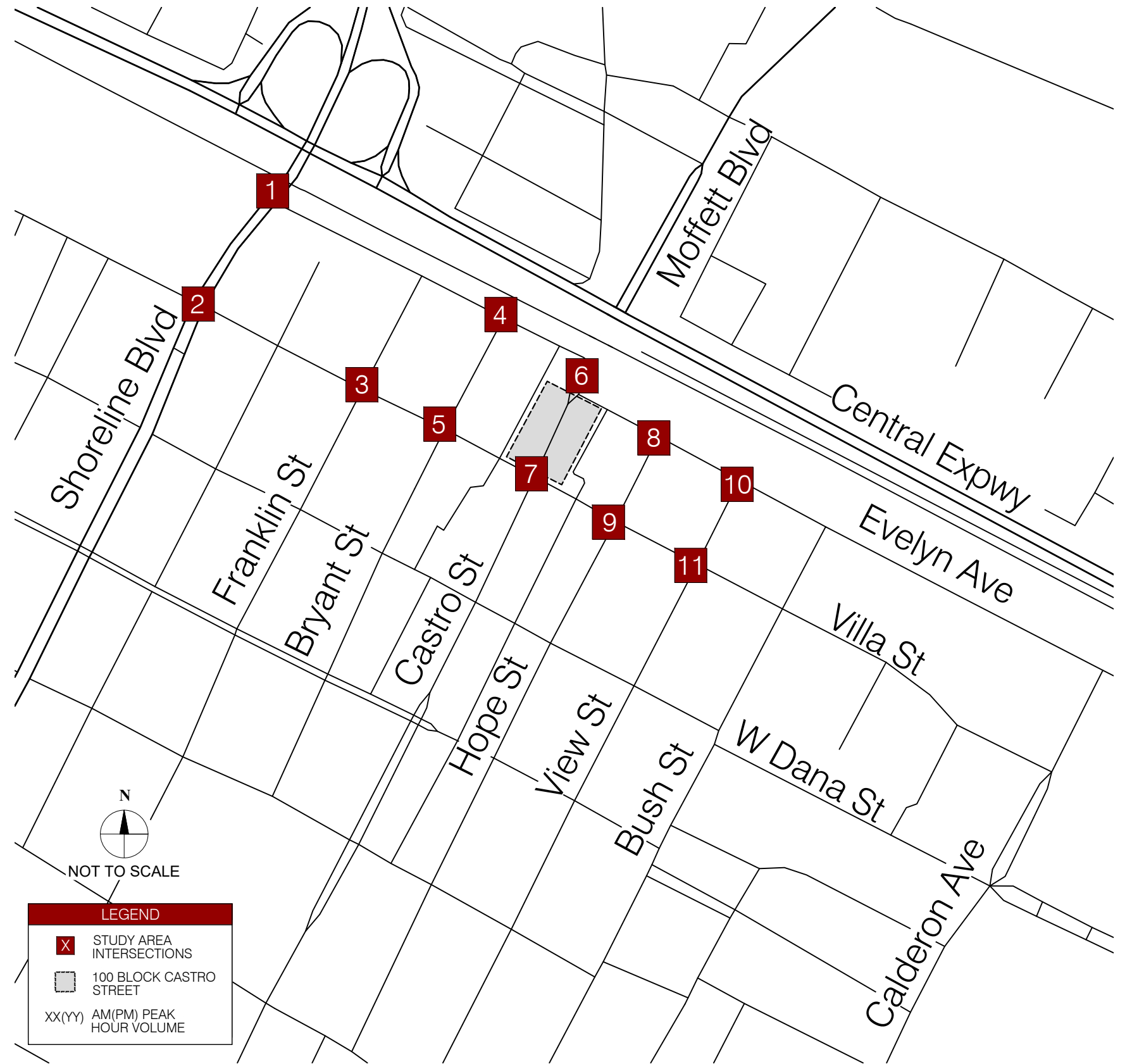
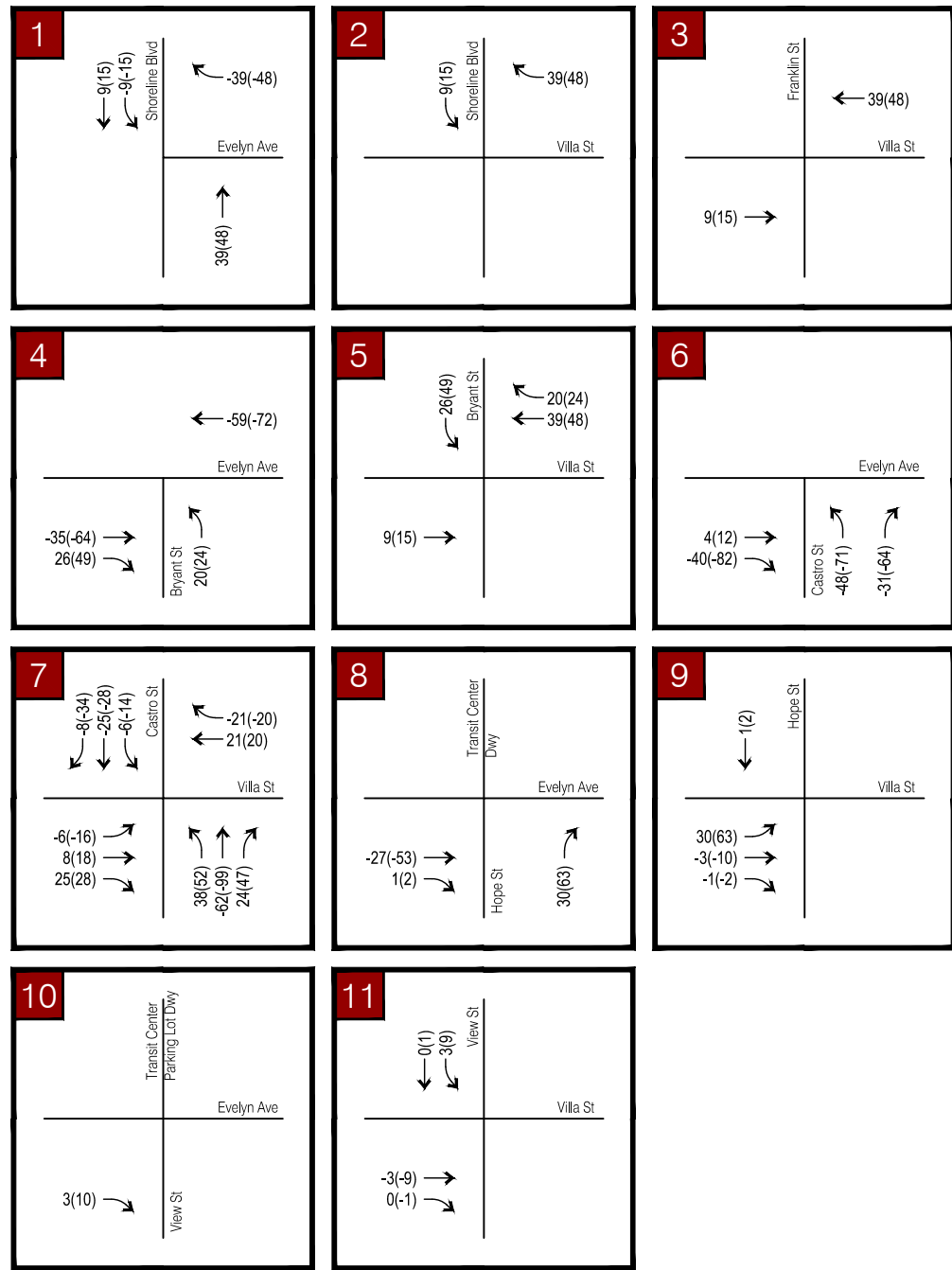
It is anticipated that northbound traffic along Castro Street will primarily be diverted to Bryant Street, Hope Street, or Shoreline Boulevard. Southbound traffic assumes that the majority of traffic (80%) will use W. Evelyn Avenue and make an eastbound right-turn at either Bryant Street, Hope Street, or View Street to access destination within the downtown area. The remaining 20% assumes that a portion of drivers arriving from Shoreline Boulevard will choose to use the Shoreline Boulevard and Villa Street intersection instead. The final turning movement volumes for Options B and C are presented in **Figure 10** and **Figure 11**.

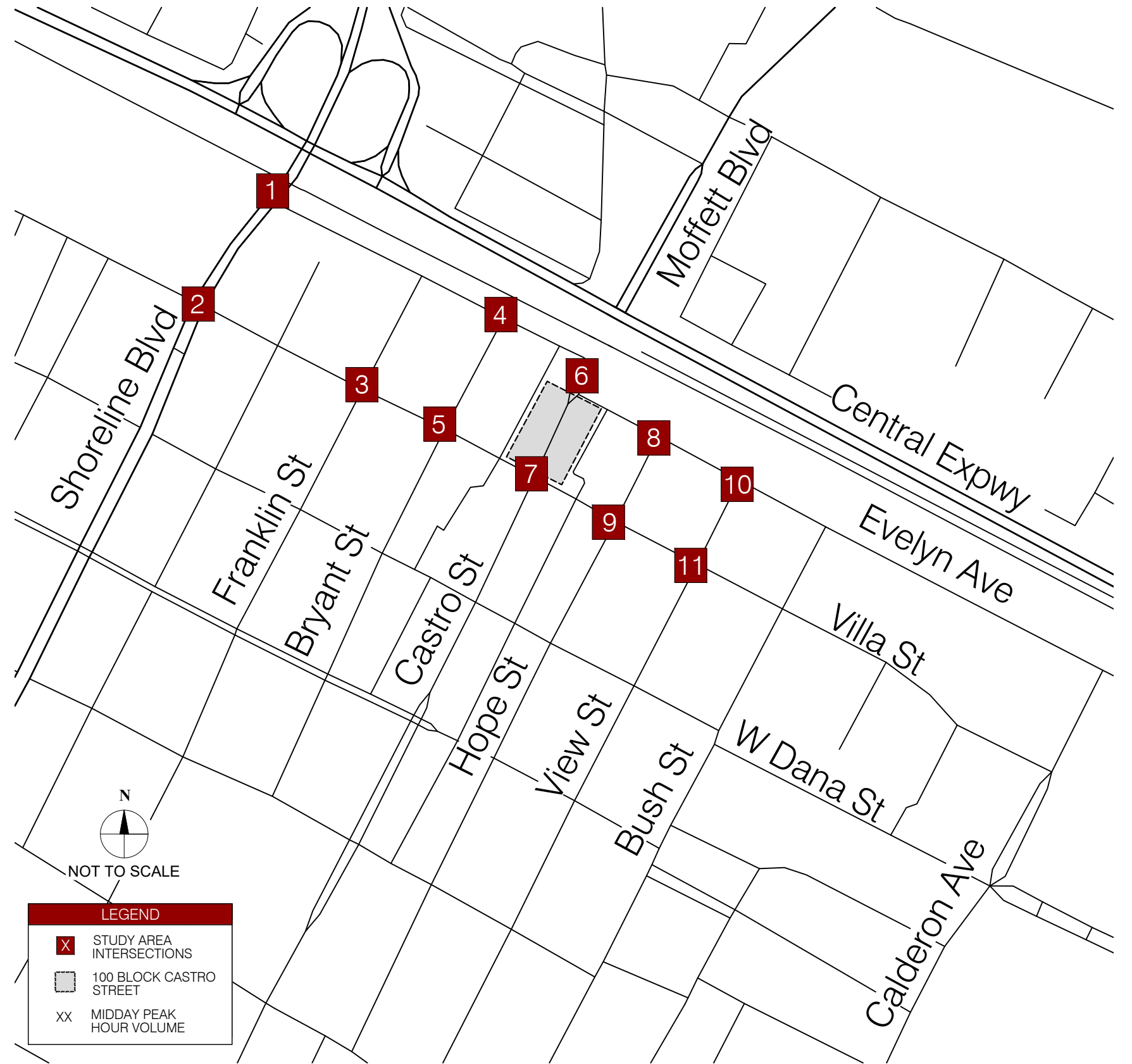
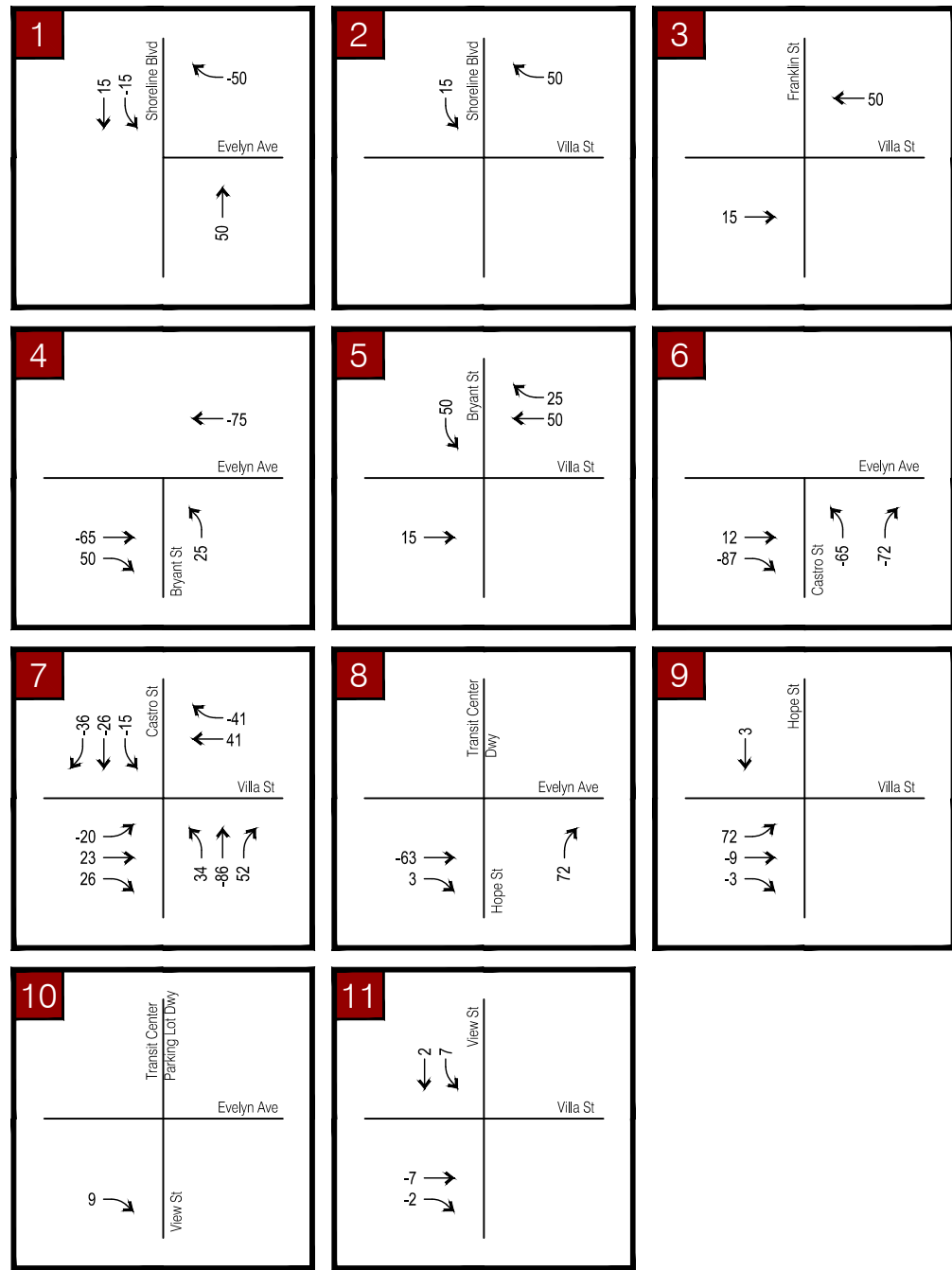
Level of Service

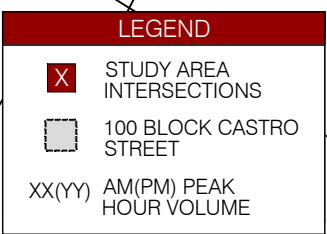
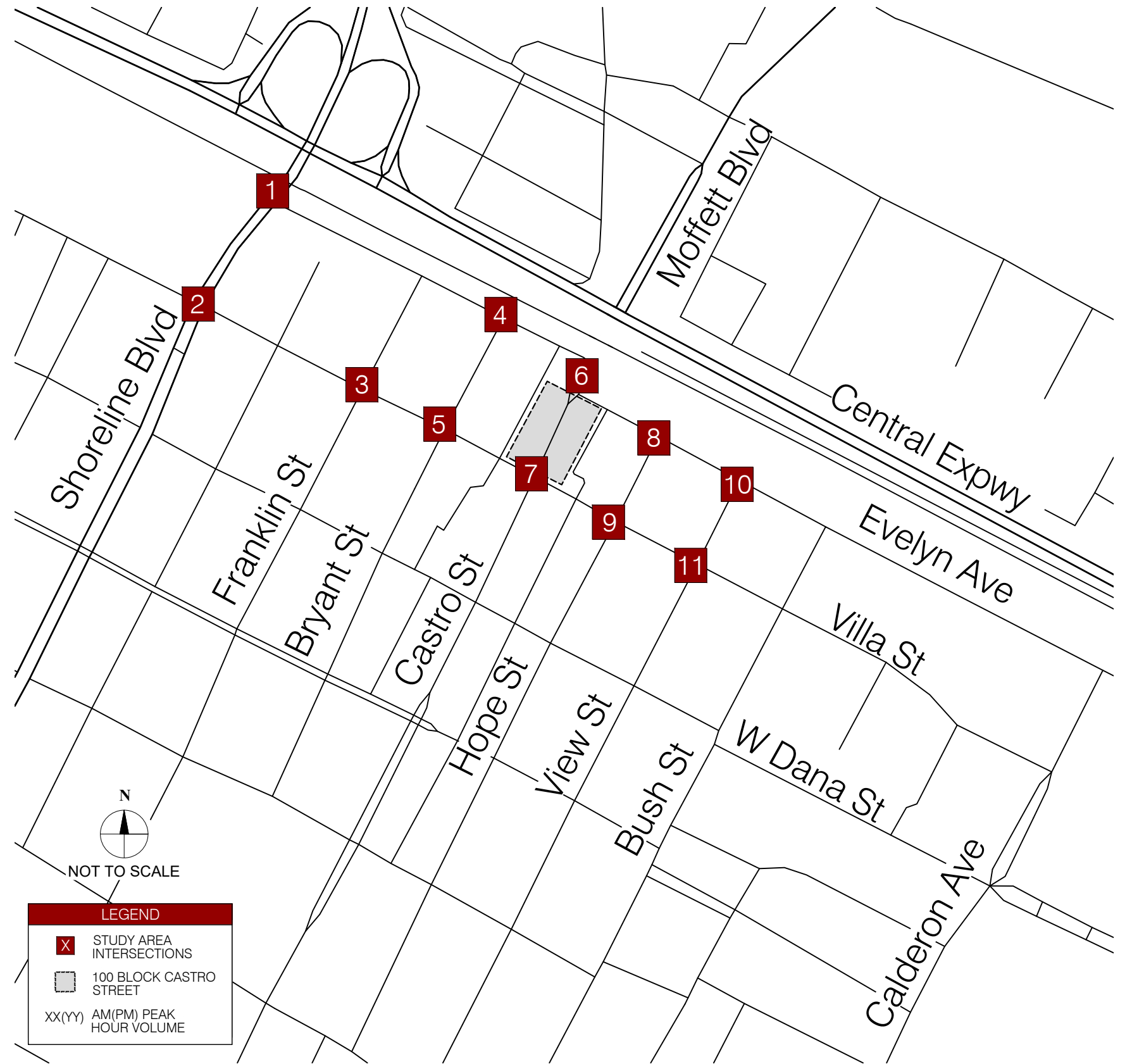
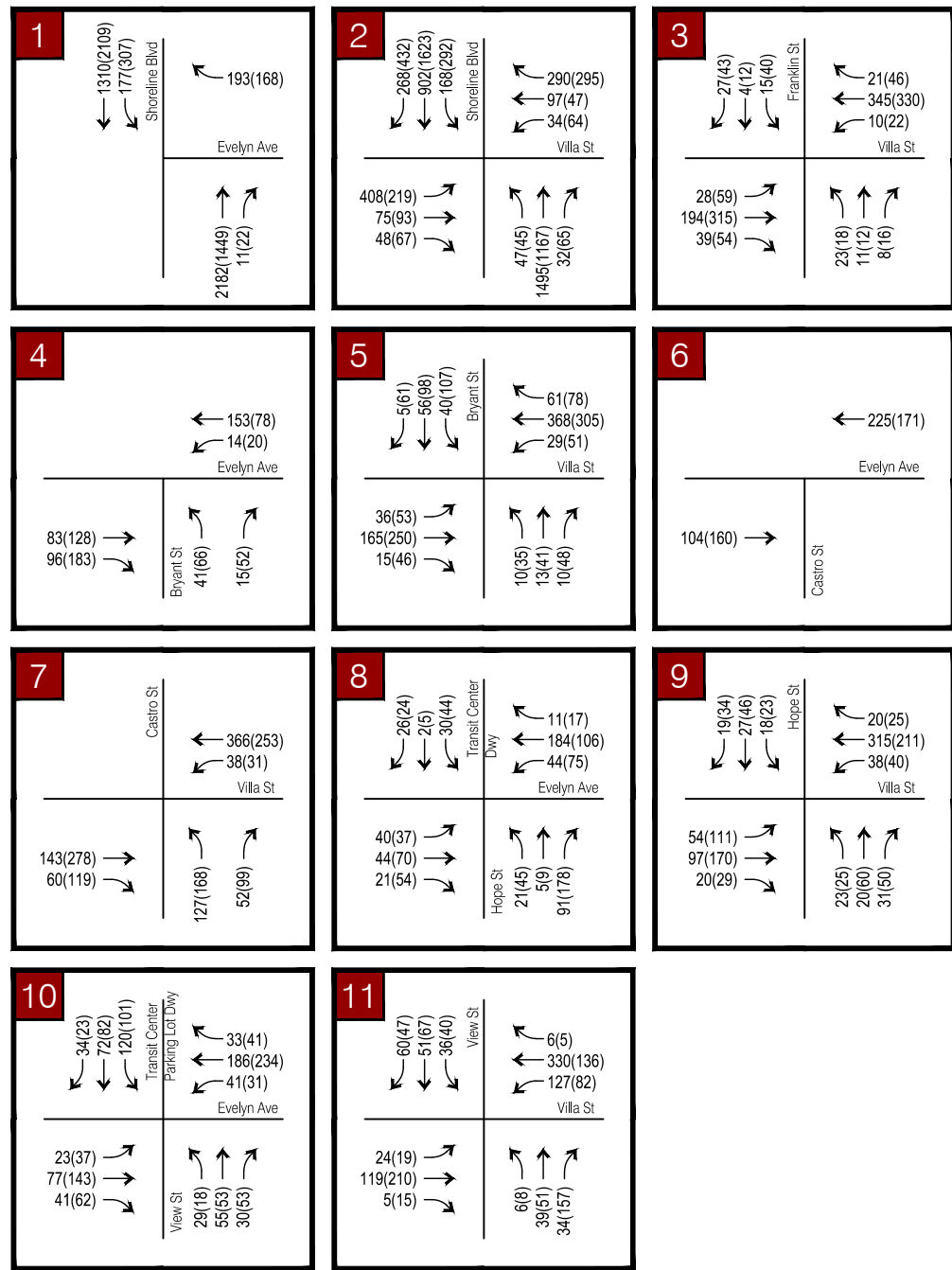
Table 4 summarizes the level of service for Option B. Even with the additional diversion associated with the closure of Castro Street, all intersections were found to operate at an acceptable level of service. Results indicate that Option B does not create significant congestion nor delay impacts on any of the study intersections. Thus, no additional improvement measures are required. It should be noted that the LOS analysis assumed Intersection #16 (the bends in W. Evelyn Avenue where Castro Street is currently) as a signalized intersection, since no LOS analysis could be conducted for an unsignalized intersection without any conflicting vehicle movements. Alternative analysis processes would need to be utilized to compare the performance of the intersection with alternative control strategies, such as Rapid Rectangular Flashing Beacons (RRFBs), Pedestrian Hybrid Beacons (PHBs), or stop control. Analysis reports are provided in **Attachment A**.

Parking Impacts

Similar to Option A, Option B would require the removal of seven (7) street parking spaces from the east side of Castro Street. These vehicles would need to find parking in other locations within the downtown area.







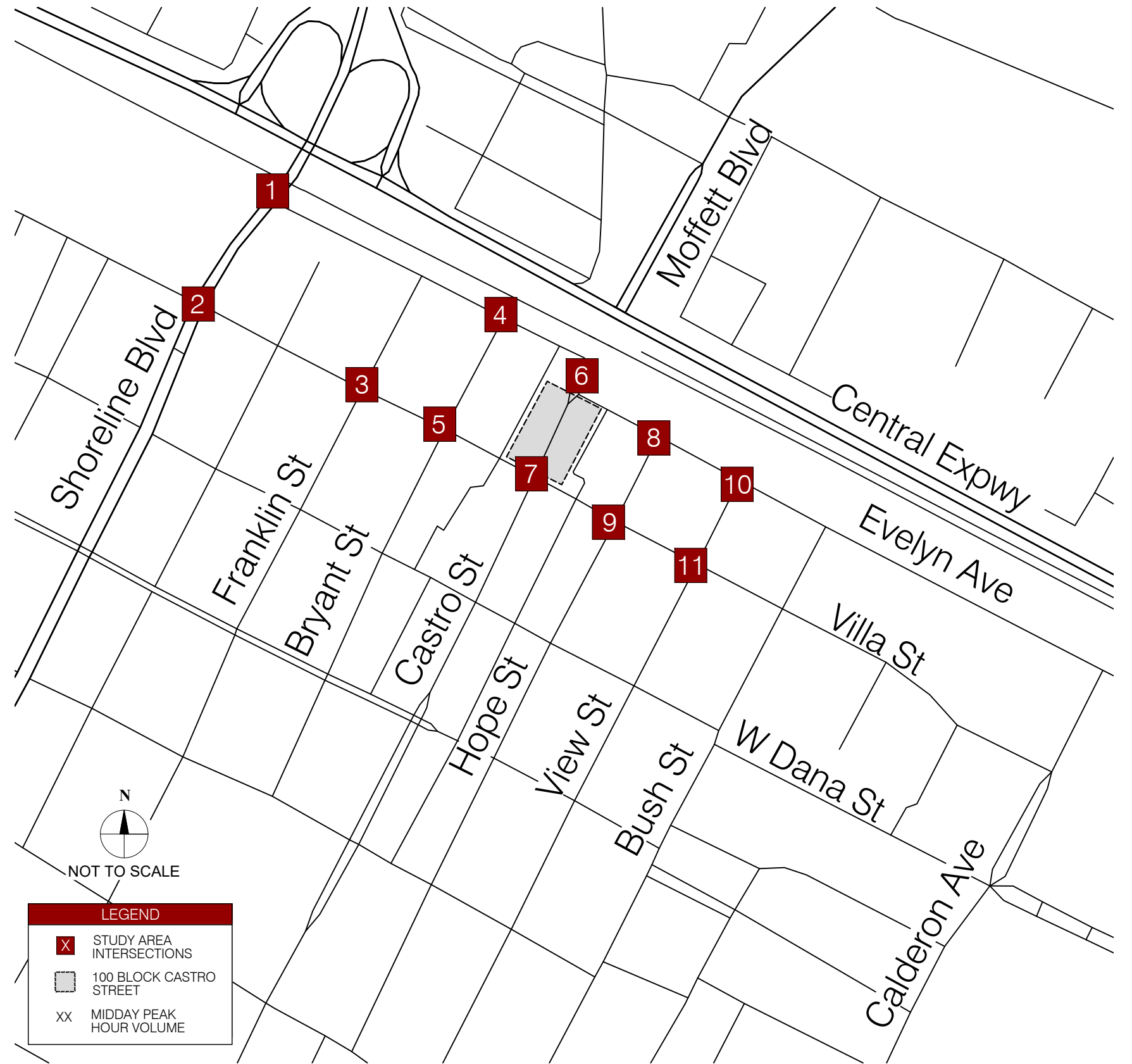
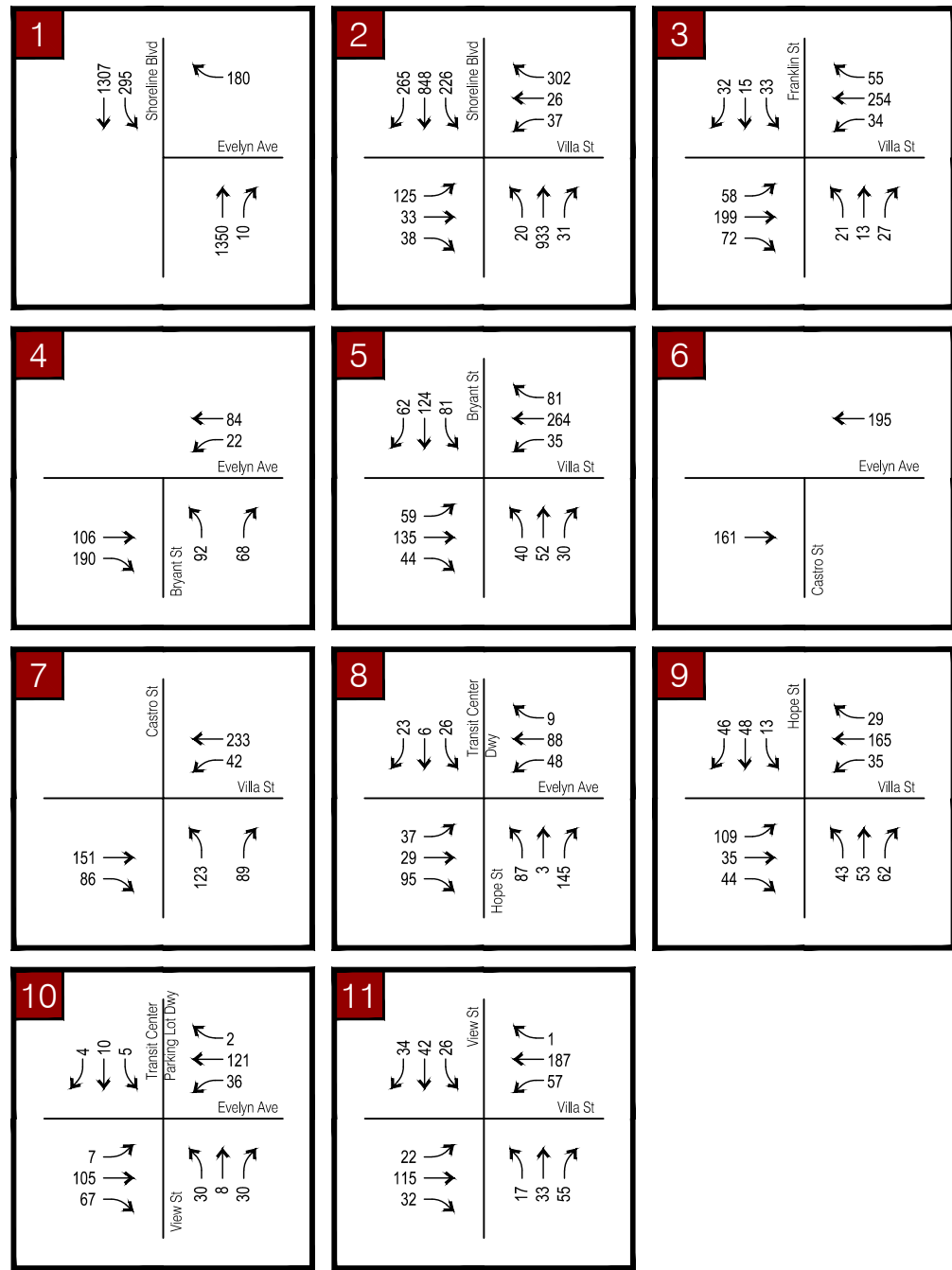


Table 4: Options B and C Intersection Level of Service Summary

#	Intersection	LOS Criteria	Control	Option B and Option C											
				AM Peak				PM Peak				Midday Peak			
				LOS	Delay (sec) ¹	v/c Ratio	Crit. Delay	LOS	Delay (sec) ¹	v/c Ratio	Crit. Delay	LOS	Delay (sec) ¹	v/c Ratio	Crit. Delay
1	Shoreline Blvd & Evelyn Ave	D	Signal	B	14.3	0.652	19.4	B	15.1	0.580	25.6	B	17.4	0.558	26.1
2	Shoreline Blvd & Villa St	D	Signal	C	27.8	0.675	29.7	C	25.8	0.662	21.7	C	23.8	0.548	31.1
3	Franklin St & Villa St ²	E	AWSC	B	10.2	0.464	10.2	B	12.6	0.571	12.6	B	10.5	0.446	10.5
4	Bryant St & Evelyn Ave ²	E	SSSC	B	11.6	0.073	1.9	B	13.2	0.130	3.2	C	18.2	0.236	5.5
5	Bryant St & Villa St ²	E	AWSC	B	11.5	0.576	11.5	C	16.3	0.699	16.3	B	12.8	0.578	12.8
6	Castro St & Evelyn Ave ²	E	Signal	A	7.5	0.259	7.5	A	7.8	0.239	7.8	A	7.8	0.252	7.8
7	Castro St & Villa St ²	E	Signal	A	8.9	0.359	9.9	A	9.8	0.388	11.3	A	9.3	0.271	10.8
8	Hope St & Evelyn Ave ²	E	Signal	B	15.4	0.139	18.1	B	16.5	0.262	18.6	B	15.8	0.219	17.8
9	Hope St & Villa St ²	E	AWSC	B	10.1	0.468	10.1	B	10.6	0.436	10.6	A	9.3	0.315	9.3
10	View St & Evelyn Ave ²	E	AWSC	A	10.0	0.371	10.0	B	11.0	0.451	11.0	A	8.1	0.205	8.1
11	View St & Villa St ²	E	AWSC	B	12.4	0.622	12.4	B	10.3	0.367	10.3	A	9.1	0.327	9.1

(1) The delay for the worst movement is reported for SSSC intersections.

(2) Intersection is within the Downtown Precise Plan boundary with a LOS E threshold.

Other Vehicle Circulation Considerations

Intersection Control of W. Evelyn Avenue at Castro Street Pedestrian Mall

As noted earlier, the conflict points between W. Evelyn Avenue and the pedestrian crossings to travel between the Transit Center and the Castro Street Pedestrian Mall could be unsignalized or signalized. Providing a signal, as currently proposed by the GSAP, would ensure that autos have a dedicated phase for movements, reducing the potential for large queuing and delay during periods of heavy Transit Center access activity. A PHB would provide a similar benefit, with the potential for less vehicle delay. The concern with a series of unsignalized pedestrian crossings is that a steady stream of pedestrians and bikes would not allow for vehicle movements to occur. However, providing an unsignalized control, such as with RRFBs or stop control, allows for the potential of creating a more pedestrian-oriented environment where the pedestrian is given the highest priority. The pedestrian would have the right to cross without delay and vehicles would be legally required to yield. Supporting infrastructure improvements, such as RRFBs, raised crosswalks, and distinctive pavement treatments, may encourage driver yielding and a safer environment. In addition, signal equipment and maintenance can be costly, especially given that signalized control would only be beneficial for the peak commute periods.

Safety Considerations

Private vehicle access under this option is restricted. The feasibility of service and emergency vehicle access to Castro Street between the W. Evelyn Avenue and Villa Street intersection will be determined at a later stage.

The two 90-degree bends could create potential sight-distance issues for vehicles traveling along W. Evelyn Avenue, particularly conflicting with pedestrian crossings. It is recommended that necessary signage be installed and that obstacles (e.g. vegetation, patio furniture, etc.) are not introduced within the sight zone for vehicles maneuvering through this area.

Diverted Traffic

Private vehicles diverted to nearby parallel streets may potentially lead to increased traffic on Wild Cherry Lane and Blossom Lane, one-way alleyways primarily designed for commercial access and parking. Additional wayfinding and traffic calming design treatments, such as speed humps, alternate paving materials, and purposeful placement of street furniture and landscaping to alter the travel-way geometry and sight lines can be used to decrease the desirability of using these streets as shortcuts to access Villa Street.

PEDESTRIAN CIRCULATION

Option B creates a pedestrian-only plaza on Castro Street between W. Evelyn Avenue and Villa Street with flush paving from building face to building face. This eliminates potential conflicts crossing Castro Street within the 100 block and provides a substantial increase in public space and programmable area. This option would likely result in slightly lower vehicular volumes on W. Evelyn Avenue (as vehicles divert to Villa Street, Hope Street, and Bryant Street), making it easier for pedestrians to access the Transit Center and Moffett Boulevard. By eliminating conflicting auto movements at the Castro Street and W. Evelyn Avenue intersection, Option B creates additional flexibility in the configuration and control of the pedestrian crossings of W. Evelyn Avenue, including

the potential for strategies such as PHBs, raised crossings, and RRFBs instead of a conventional traffic signal.

Table 5 presents how the Cumulative GSAP TIA pedestrian volumes would be distributed among the three proposed crosswalks along W. Evelyn Avenue. It is anticipated that majority of pedestrian would utilize either the middle or eastern crosswalk due to its proximity to the Transit Center and downtown retail/restaurant uses.

Table 5: Option B Pedestrian Volumes

Crosswalk Location (all across W. Evelyn Avenue)	AM	Midday	PM
West	115	10	246
Middle	332	410	530
East	839	437	905
Total Volume	1,286	857	1,681

As shown in **Table 5**, the number of pedestrian conflicts with autos is less with Option B than with Option A. In addition, all pedestrian crossings are at locations without any conflicting auto movements, simplifying points of conflict and likely increasing pedestrian visibility.

BICYCLE CIRCULATION

Similar to pedestrian circulation improvements, Option B lessens the risk for vehicle-bicycle related conflicts since cyclists will be able to use or walk their bikes along the pedestrian mall, conflicting with autos only at the W. Evelyn Avenue crossings. A continuous and clearly identifiable bicycle corridor and additional bicycle racks should be provided along the 100 block of Castro Street to facilitate what is anticipated to be high levels of bicycle activity accessing the Transit Center and the bicycle/pedestrian undercrossings. This should be implemented to ensure that street furniture and other street life elements do not hinder the ability of cyclists to use this corridor.

TRANSIT IMPACTS

As indicated by the GSAP TIA (see Figure 29), there are no public transit vehicles anticipated to travel along Castro Street between W. Evelyn Avenue and Villa Street with the implementation of the GSAP. Transit vehicles instead will be using Hope Street and View Street along with W. Evelyn Avenue to access the Transit Center. Should Option B become approved for future study and implementation, further coordination with VTA will be required to confirm route alignments and related service impacts.

Option C

GEOMETRIC MODIFICATION

Similar to Option B, Castro Street would be closed to all auto traffic between W. Evelyn Avenue and Villa Street. The 100 block of Castro Street would be converted into a bicycle and pedestrian space with elevated/flush paving from building face to building face. The provision of access to emergency and service vehicles along the 100 block of Castro Street will be determined at a later stage. W. Evelyn Avenue would be maintained as a through street with a revised alignment. The north-south jog of W. Evelyn Avenue would be shifted east to align with Blossom Lane. In addition, the grand stairway entrance to the bicycle/pedestrian undercrossings, which provide access to the northbound Caltrain platforms, the VTA light rail platforms, and Moffett Boulevard, would be shifted slightly south to be placed south of W. Evelyn Avenue. That would allow pedestrian and bicycle movements from the Castro Street corridor to avoid having to cross W. Evelyn Avenue to access the undercrossings. Note that access to the southbound Caltrain platforms and the ramp to the undercrossings would still require crossing W. Evelyn Avenue at grade. A pedestrian signal is assumed to remain for the W. Evelyn Avenue at-grade pedestrian crossing.

VEHICLE CIRCULATION

Option C is consistent with Option B in terms of auto circulation performance. While the W. Evelyn Avenue alignment shifts in Option C, there is no substantial change to the expected auto diversion or intersection operations along W. Evelyn Avenue compared to Option B. Therefore, see the Vehicle Circulation section of Option B for vehicle network performance. As noted in the level of service section in Option B, the analysis methodology does not allow for a comparison of performance of the W. Evelyn Avenue conflict with the at-grade crosswalks under varying traffic control scenarios. The analysis assumes a pedestrian signal for these crosswalks; however, alternative strategies should be considered.

The shift of the jog in W. Evelyn Avenue to align with Blossom Lane will require modifications to the Blossom Lane driveway access to route vehicles along W. Evelyn Avenue and deter cut-through traffic along Blossom Lane. This may include driveway modifications, signage, and traffic control strategies.

Option C would have similar notes as Option B with respect to intersection control and safety. However, it is anticipated that the direct connection between the GSAP grand staircase and the Castro Pedestrian Mall would result in less pedestrians using the at-grade W. Evelyn Avenue crossing. Although the performance of the at-grade pedestrian crossing cannot be modelled using the analysis methodology; fewer pedestrian at-grade crossings would reduce delay for vehicle operations along W. Evelyn Avenue.

PEDESTRIAN CIRCULATION

Option C is similar to Option B in providing additional pedestrian space along Castro Street. However, it is distinct in relocating the W. Evelyn Avenue jog to the east, allowing for the bicycle/pedestrian uncrossing stair access to be located on the downtown side of W. Evelyn Avenue. This provides

several improvements over Option B. The pedestrian mall footprint in Option C is larger since the pedestrian space extends to the northern leg of W. Evelyn Avenue. It also creates the opportunity for a public plaza adjacent to the 100 Block of Castro Street instead of separated by W. Evelyn Avenue. This option reduces the number of pedestrian that would need to cross W. Evelyn Avenue to travel between the Transit Center/Moffett Boulevard and downtown Mountain View. Less people using the at-grade Evelyn Avenue crossing translates to a reduction in pedestrian-vehicle conflicts and provides further flexibility in the control of the W. Evelyn Avenue at-grade pedestrian crossings as noted in Option B.

Table 6 depicts the expected at-grade pedestrian crossings of W. Evelyn Avenue with the relocation of the roadway.

Table 6: Option C Pedestrian Volumes

Location	AM	Midday	PM
At-Grade Crossing	254	137	191

As shown in **Table 6**, the number of at-grade pedestrian crossings with this option is far lower than both in Option A and in Option B due to the relocation of W. Evelyn Avenue north of the undercrossing portal.

BICYCLE CIRCULATION

The benefits to bicycles under this Option are similar to the pedestrian benefits. By providing direct access to the GSAP undercrossing, potential conflict points along W. Evelyn Avenue are removed for some users. The grand staircase to the undercrossing is planned to include bike channels to allow cyclists to walk their bikes more conveniently down the stairs. The ramps provided on the north side of W. Evelyn Avenue are not designed for cyclists to ride on due to constrained widths and switchback design; however, some cyclists may choose to use the ramps instead of the stairs and thus would still cross W. Evelyn Avenue as in Option B.

Conclusion

Kimley-Horn evaluated the traffic and circulation impacts of three proposed design options for the 100 block of Castro Street. Each of the alternatives reflect street modifications and reconfigurations to improve the pedestrian thoroughfare in downtown Mountain View. The analysis found that all three options resulted in minimal impacts to level of service for the study intersections within the downtown area. While Options B and C require greater amounts of vehicle diversion as a result of the closure of the 100 block of Castro Street to autos, this amount of diversion is not anticipated to result in any significant congestion impacts to nearby streets.

Options A, B, and C produced similar parking impacts consisting of the loss of seven on-street spaces, requiring vehicles to use nearby public parking lots or on-street parking options.

The pedestrian mall created under Options B and C greatly reduces the potential for vehicle-pedestrian conflicts, particularly for pedestrians crossing Castro Street to get from one side of the block to the other. By eliminating turning movements at the Castro Street and W. Evelyn Avenue intersection, the pedestrian crossings of W. Evelyn Avenue become much simpler and easier to navigate. This provides greater flexibility for alternative traffic control strategies, such as PHBs, RRFBs, and stop control. Similarly, Options B and C provide an improved environment for cyclists. Cyclists will be able to walk or ride their bikes along the pedestrian mall instead of requiring shared use of the roadway with autos. If selected, a continuous and identifiable bicycle corridor should be considered for the 100 block of Castro St to facilitate anticipated high levels of bicycle activity.

The number of pedestrian crossings is somewhat reduced in Option B with the closure of the 100 block of Castro Street to autos and greatly reduced in Option C by providing access to the bicycle/pedestrian undercrossing on the downtown side of W. Evelyn Avenue. In total, Option C would eliminate a potential auto conflict for over half of the at-grade pedestrian crossings taking place at Castro Street and W. Evelyn Avenue during the AM, Midday, and PM peak periods (82%, 88%, and 91% respectively) compared to crossing volumes under Option A and the baseline GSAP network .

Appendix A - Traffic Analysis Sheets

Castro Pedestrian Mall Feasibility Study Traffic Analysis Report with the Appendix A Traffic Analysis Sheets is available on the project website at

www.mountainview.gov/castropedestrianmall