BERKELEY CITY COUNCIL FACILITIES, INFRASTRUCTURE, TRANSPORTATION, ENVIRONMENT & SUSTAINABILITY COMMITTEE REGULAR MEETING

Thursday, November 21, 2019
2:00 PM

2180 Milvia Street, 6th Floor - Redwood Room

Committee Members:

Councilmembers Cheryl Davila, Rigel Robinson, and Kate Harrison

AGENDA

Roll Call

Public Comment on Non-Agenda Matters

Minutes for Approval

Draft minutes for the Committee's consideration and approval.

1. **Minutes - October 3, 2019**

2. **Minutes - October 17, 2019**

Committee Action Items

The public may comment on each item listed on the agenda for action as the item is taken up. The Chair will determine the number of persons interested in speaking on each item. Up to ten (10) speakers may speak for two minutes. If there are more than ten persons interested in speaking, the Chair may limit the public comment for all speakers to one minute per speaker. Speakers are permitted to yield their time to one other speaker, however no one speaker shall have more than four minutes.

Following review and discussion of the items listed below, the Committee may continue an item to a future committee meeting, or refer the item to the City Council.

Committee Action Items

3. Traffic Circle Policy and Program Recommendations
From: Traffic Circle Policy Task Force
Referred: November 12, 2019
Due: April 20, 2019
Recommendation: On November 12, 2019, the City Council referred the following language from the proposed Traffic Circle Policy to the Facilities, Infrastructure, Transportation, Environment & Sustainability Committee for consideration:
"New trees proposed by traffic circle coordinators or volunteers will be approved by the City Forester, with a preference for natives and a focus on maximizing ecosystem services.
The Task Force recommends revisiting trunk size considerations every five years as the implications of climate change and autonomous vehicles become clearer. In the interim, large trunked trees such as redwoods will not be planted."
The original recommendation from the Traffic Circle Policy Task Force is as follows:
Adopt a Resolution to approve the Traffic Circle Policy as outlined in the report and refer to the traffic engineer for codification.
Integrate the Community Common Space Stewardship Program into the "Adopt a Spot Initiative," which the City Council approved on April 23, 2019 (Item #33), and request that the City Council refer it to the Traffic Circle Task Force, rather than the Parks and Public Works Commissions, for the purpose of development, outlining criteria and environmental benefits, program costs and staffing.
Refer additional traffic calming measures at Ellsworth for the intersections with Dawn Redwoods to the mid-year budget process and request mitigation funds from East Bay Municipal Utility District (EBMUD) due to the impact on these streets from their Wildcat Pipeline Project.
Refer to the City Manager:
1. Create the Community Common Space Stewardship Program as described in the report.
2. Refer the additional staff and material costs of this program to the budget process.
Financial Implications: See report
Contact: Tano Trachtenberg, Commission Secretary, (510) 981-7100

Committee Action Items

4. Amending Chapter 19.32 of the Berkeley Municipal Code to Require Kitchen Exhaust Ventilation in all Residential and Condominium Units Undergoing Renovations and Prior to Execution of a Contract for Sale or Close of Escrow
(Item Contains Revised Material)
From: Councilmember Harrison
Referred: September 9, 2019
Due: February 17, 2020
Recommendation: 1. Adopt an ordinance amending Berkeley Municipal Code (BMC) 19.32 to require kitchen exhaust ventilation in residential and condominium units undergoing renovations and in all existing residential buildings prior to execution of a contract for sale or close of escrow.
2. Refer to the City Manager to draft a resolution establishing appropriate local climatic, geological or topographical findings as required by the California Building Standards Commission.
Financial Implications: See report
Contact: Kate Harrison, Councilmember, District 4, (510) 981-7140

5. Referral: Electric Moped Ride-Share Franchise Agreement
From: Councilmembers Robinson and Bartlett
Referred: November 4, 2019
Due: April 12, 2019
Recommendation: Refer to the City Manager to establish a process for the creation of franchise agreements for ride-share motorized bicycles, and establish a franchise agreement with ride-share motorized bicycle provider Revel in coordination with the City of Oakland.
Financial Implications: See report
Contact: Rigel Robinson, Councilmember, District 7, (510) 981-7170

Unscheduled Items

These items are not scheduled for discussion or action at this meeting. The Committee may schedule these items to the Action Calendar of a future Committee meeting.

- **None**

Items for Future Agendas

- **Discussion of items to be added to future agendas**

Adjournment

~~~~~~

Written communications addressed to the Facilities, Infrastructure, Transportation, Environment & Sustainability Committee and submitted to the City Clerk Department will be distributed to the Committee prior to the meeting.

This meeting will be conducted in accordance with the Brown Act, Government Code Section 54953. Members of the City Council who are not members of the standing committee may attend a standing committee meeting even if it results in a quorum being present, provided that the non-members only act as observers and do not participate in the meeting. If only one member of the Council who is not a member of the committee is present for the meeting, the member may participate in the meeting because less than a quorum of the full Council is present. Any member of the public may attend this meeting. Questions regarding this matter may be addressed to Mark Numainville, City Clerk, (510) 981-6900.

COMMUNICATION ACCESS INFORMATION:
This meeting is being held in a wheelchair accessible location. To request a disability-related accommodation(s) to participate in the meeting, including auxiliary aids or services, please contact the Disability Services specialist at (510) 981-6418 (V) or (510) 981-6347 (TDD) at least three business days before the meeting date. Attendees at public meetings are reminded that other attendees may be sensitive to various scents, whether natural or manufactured, in products and materials. Please help the City respect these needs.

~~~~~~

I hereby certify that the agenda for this special meeting of the Berkeley City Council was posted at the display case located near the walkway in front of the Maudelle Shirek Building, 2134 Martin Luther King Jr. Way, as well as on the City's website, on November 14, 2019.

Mark Numainville, City Clerk

Communications

Communications submitted to City Council Policy Committees are on file in the City Clerk Department at 2180 Milvia Street, 1st Floor, Berkeley, CA.

01

BERKELEY CITY COUNCIL FACILITIES, INFRASTRUCTURE, TRANSPORTATION, ENVIRONMENT & SUSTAINABILITY COMMITTEE REGULAR MEETING

Thursday, October 03, 2019
2:00 PM

2180 Milvia Street, 6th Floor - Redwood Room

Committee Members:

Councilmembers Cheryl Davila, Rigel Robinson, and Kate Harrison

MINUTES

Roll Call: 2:05 p.m.

Present: Davila, Robinson, Harrison

Announcement: Brown Act Participation Rules

Public Comment on Non-Agenda Matters: 1 Speaker.

Minutes for Approval

Draft minutes for the Committee's consideration and approval.

1. Minutes - July 18, 2019

Action: M/S/C (Robinson/Davila) to approve the minutes as presented.
Vote: All Ayes.

Committee Action Items

The public may comment on each item listed on the agenda for action as the item is taken up. The Chair will determine the number of persons interested in speaking on each item. Up to ten (10) speakers may speak for two minutes. If there are more than ten persons interested in speaking, the Chair may limit the public comment for all speakers to one minute per speaker. Speakers are permitted to yield their time to one other speaker, however no one speaker shall have more than four minutes.

Following review and discussion of the items listed below, the Committee may continue an item to a future committee meeting, or refer the item to the City Council.

Committee Action Items

2. Amending Chapter 19.32 of the Berkeley Municipal Code to Require Kitchen Exhaust Ventilation in all Residential and Condominium Units Undergoing Renovations and Prior to Execution of a Contract for Sale or Close of Escrow
From: Councilmember Harrison
Referred: September 9, 2019
Due: February 17, 2020
Recommendation: 1. Adopt an ordinance amending Berkeley Municipal Code (BMC) 19.32 to require kitchen exhaust ventilation in residential and condominium units undergoing renovations and in all existing residential buildings prior to execution of a contract for sale or close of escrow.
2. Refer to the City Manager to draft a resolution establishing appropriate local climatic, geological or topographical findings as required by the California Building Standards Commission.
Financial Implications: See report
Contact: Kate Harrison, Councilmember, District 4, (510) 981-7140

Action: 1 speaker. The item was continued to the next regularly scheduled meeting to allow staff to return with more information regarding the City's Building Code Amendment, which is updated every three years and set to go before the full Council in November and how it will compare to the proposed item.

Committee Action Items

3. Amending Chapter 19.34 of the Berkeley Municipal Code to Expand Automatic Gas Shut-Off Valve Requirements in Multifamily, Condominium and Commercial Buildings Undergoing Renovations and to All Existing Buildings Prior to Execution of a Contract for Sale or Close of Escrow
From: Councilmembers Harrison and Bartlett
Referred: August 26, 2019
Due: February 3, 2020
Recommendation:
1. Adopt an ordinance amending Berkeley Municipal Code (BMC) 19.34.040 to expand requirements for automatic natural gas shut-off valves or excess flow valves in multifamily, condominium and commercial buildings undergoing renovations and in all existing buildings prior to execution of a contract for sale or close of escrow.
2. Refer to Planning Department to draft a resolution establishing appropriate local climatic, geological or topographical findings as required by the California Building Standards Commission.
Financial Implications: See report
Contact: Kate Harrison, Councilmember, District 4, (510) 981-7140

Action: 1 speaker. M/S/C (Harrison/Robinson) to send the item with a Positive Qualified Recommendation back to the City Council with the following amendments.

Amend the recommendation revised to read as follows:

1. Refer to the Disaster and Fire Safety Commission to consider an ordinance amending Berkeley Municipal Code (BMC) 19.34.040 to expand requirements for automatic natural gas shut-off valves or excess flow valves in multifamily, condominium and commercial buildings undergoing renovations and in all existing buildings prior to execution of a contract for sale or close of escrow and to ask the Commission to consider other triggers as appropriate.

Amend the Financial Implications to read:

Staff savings realized from responders not having to shut off gas in an emergency.

Vote: All Ayes.

Committee Action Items

4a. Recommendations for a Fossil Fuel Free Berkeley
From: Energy Commission
Referred: May 14, 2019
Due: October 29, 2019
Recommendation: The Berkeley Energy Commission recommends the City Council refer to the City Manager to implement the recommendations listed below as well as additional measures outlined in the attached report to aggressively reduce greenhouse gas (GHG) emissions in the city and the region.
Financial Implications: Unknown
Contact: Billi Romain, Commission Secretary, 981-7400

4b. Companion Report: Recommendations for a Fossil Fuel Free Berkeley
(Item Contains Supplemental Material)
From: City Manager
Referred: May 14, 2019
Due: October 29, 2019
Recommendation: Refer to the City Manager to continue to implement existing policies and programs that are consistent with the recommendations in the Berkeley Energy Commission's Fossil Fuel Free Berkeley Report, such as the Building Energy Saving Ordinance and development of new building codes that promote building electrification, and also to complete new evaluations and analyses of current and potential future greenhouse gas reduction programs and policies in order to inform next steps for accelerating progress to a Fossil Fuel Free Berkeley.
Financial Implications: See report
Contact: Timothy Burroughs, Planning and Development, 981-7400

Action: 2 speakers. Items 4a and 4b were continued to the next regularly scheduled meeting. The committee requested that staff from the Parks, Recreation and Waterfront Department and the Ecology Center attend the next meeting to provide an update on current projects, highlighted in the supplemental companion staff report.

Unscheduled Items

These items are not scheduled for discussion or action at this meeting. The Committee may schedul these items to the Action Calendar of a future Committee meeting.

5. **Considering Multi-year Bidding Processes for Street Paving**
From: Mayor Arreguin, Councilmembers Hahn, Harrison and Davila
Referred: March 11, 2019
Due: November 9, 2019
Recommendation: 1. Restate the recommendation approved at the December 11, 2018 Council meeting to create a two-year bidding process for street paving to realize savings by (a) reducing by 50% City staff time devoted to bidding and contracting processes over each two year period and (b) benefitting from reduced pricing which may be available for larger contracts that offer greater economies of scale and reduce contractors' bidding and contracting costs.
2. Short-term referral to the City Manager to explore the possibility, feasibility, costs, and benefits of bidding in increments of up to 5 years to encompass entire 5-year paving plans, or other ideas to more rationally and cost-effectively align the paving plan with budget cycles and reduce costs associated with frequent bid cycles for relatively small contracts.
Financial Implications: See report
Contact: Jesse Arreguin, Mayor, (510) 981-7100

Items for Future Agendas

- **None**

Adjournment

Action: M/S/C (Harrison/Davila) to adjourn the meeting.
Vote: All Ayes.

Adjourned at 3:49 p.m.

I hereby certify that this is a true and correct record of the Facilities, Infrastructure, Transportation, Environment & Sustainability Committee meeting held on October 3, 2019.

_____

Michael MacDonald, Assistant City Clerk

02

BERKELEY CITY COUNCIL FACILITIES, INFRASTRUCTURE, TRANSPORTATION, ENVIRONMENT & SUSTAINABILITY COMMITTEE REGULAR MEETING

Thursday, October 17, 2019
2:00 PM

2180 Milvia Street, 6th Floor - Redwood Room

Committee Members:

Councilmembers Cheryl Davila, Rigel Robinson, and Kate Harrison

MINUTES

Roll Call: 2:03 p.m.

Present: Davila, Robinson

Absent: Harrison

Public Comment on Non-Agenda Matters: 2 Speakers.

Minutes for Approval

Draft minutes for the Committee's consideration and approval.

1. Minutes - October 3, 2019

Action: No action taken. Item held over to next meeting.

Committee Action Items

The public may comment on each item listed on the agenda for action as the item is taken up. The Chair will determine the number of persons interested in speaking on each item. Up to ten (10) speakers may speak for two minutes. If there are more than ten persons interested in speaking, the Chair may limit the public comment for all speakers to one minute per speaker. Speakers are permitted to yield their time to one other speaker, however no one speaker shall have more than four minutes.

Following review and discussion of the items listed below, the Committee may continue an item to a future committee meeting, or refer the item to the City Council.

Committee Action Items

2a. Recommendations for a Fossil Fuel Free Berkeley
From: Energy Commission
Referred: May 14, 2019
Due: October 29, 2019
Recommendation: The Berkeley Energy Commission recommends the City Council refer to the City Manager to implement the recommendations listed below as well as additional measures outlined in the attached report to aggressively reduce greenhouse gas (GHG) emissions in the city and the region.
Financial Implications: Unknown
Contact: Billi Romain, Commission Secretary, 981-7400

2b. Companion Report: Recommendations for a Fossil Fuel Free Berkeley
(Item Contains Supplemental Material)
From: City Manager
Referred: May 14, 2019
Due: October 29, 2019
Recommendation: Refer to the City Manager to continue to implement existing policies and programs that are consistent with the recommendations in the Berkeley Energy Commission's Fossil Fuel Free Berkeley Report, such as the Building Energy Saving Ordinance and development of new building codes that promote building electrification, and also to complete new evaluations and analyses of current and potential future greenhouse gas reduction programs and policies in order to inform next steps for accelerating progress to a Fossil Fuel Free Berkeley.
Financial Implications: See report
Contact: Timothy Burroughs, Planning and Development, 981-7400

Action: Revision to Item 2b submitted by Planning Department. No action taken. Item will automatically return to the Council agenda pursuant to the 120-day time limit for items referred to policy committees.

Unscheduled Items

These items are not scheduled for discussion or action at this meeting. The Committee may schedule these items to the Action Calendar of a future Committee meeting.

3. Considering Multi-year Bidding Processes for Street Paving
From: Mayor Arreguin, Councilmembers Hahn, Harrison and Davila
Referred: March 11, 2019
Due: November 9, 2019
Recommendation: 1. Restate the recommendation approved at the December 11, 2018 Council meeting to create a two-year bidding process for street paving to realize savings by (a) reducing by 50% City staff time devoted to bidding and contracting processes over each two year period and (b) benefitting from reduced pricing which may be available for larger contracts that offer greater economies of scale and reduce contractors' bidding and contracting costs.
2. Short-term referral to the City Manager to explore the possibility, feasibility, costs, and benefits of bidding in increments of up to 5 years to encompass entire 5-year paving plans, or other ideas to more rationally and cost-effectively align the paving plan with budget cycles and reduce costs associated with frequent bid cycles for relatively small contracts.
Financial Implications: See report
Contact: Jesse Arreguin, Mayor, (510) 981-7100

4. Amending Chapter 19.32 of the Berkeley Municipal Code to Require Kitchen Exhaust Ventilation in all Residential and Condominium Units Undergoing Renovations and Prior to Execution of a Contract for Sale or Close of Escrow
(Item Contains Revised Material)
From: Councilmember Harrison
Referred: September 9, 2019
Due: February 17, 2020
Recommendation: 1. Adopt an ordinance amending Berkeley Municipal Code (BMC) 19.32 to require kitchen exhaust ventilation in residential and condominium units undergoing renovations and in all existing residential buildings prior to execution of a contract for sale or close of escrow.
2. Refer to the City Manager to draft a resolution establishing appropriate local climatic, geological or topographical findings as required by the California Building Standards Commission.
Financial Implications: See report
Contact: Kate Harrison, Councilmember, District 4, (510) 981-7140

Items for Future Agendas

- **None**

Adjournment

Adjourned at 2:14 p.m.

I hereby certify that this is a true and correct record of the Facilities, Infrastructure, Transportation, Environment & Sustainability Committee meeting held on October 17, 2019.

_____
Michael MacDonald, Assistant City Clerk

03

Traffic Circle Policy Task Force

ACTION CALENDAR
November 12, 2019

To: Honorable Mayor and Members of the City Council

From: Traffic Circle Policy Task Force

Submitted By: Diane Ross-Leech, Chairperson, Traffic Circle Policy

Subject: Traffic Circle Policy and Program Recommendations

RECOMMENDATIONS

Adopt a resolution to approve the Traffic Circle Policy as outlined below and refer to the traffic engineer for codification.

Integrate the Community Common Space Stewardship Program into the "Adopt a Spot Initiative," which the City Council approved on April 23, 2019 (Item #33), and request that the City Council refer it to the Traffic Circle Task Force, rather than the Parks and Public Works Commissions, for the purpose of development, outlining criteria and environmental benefits, program costs and staffing.

Refer additional traffic calming measures at Ellsworth for the intersections with Dawn Redwoods to the mid-year budget process and request mitigation funds from EBMUD due to the impact on these streets from their Wildcat Pipeline Project.

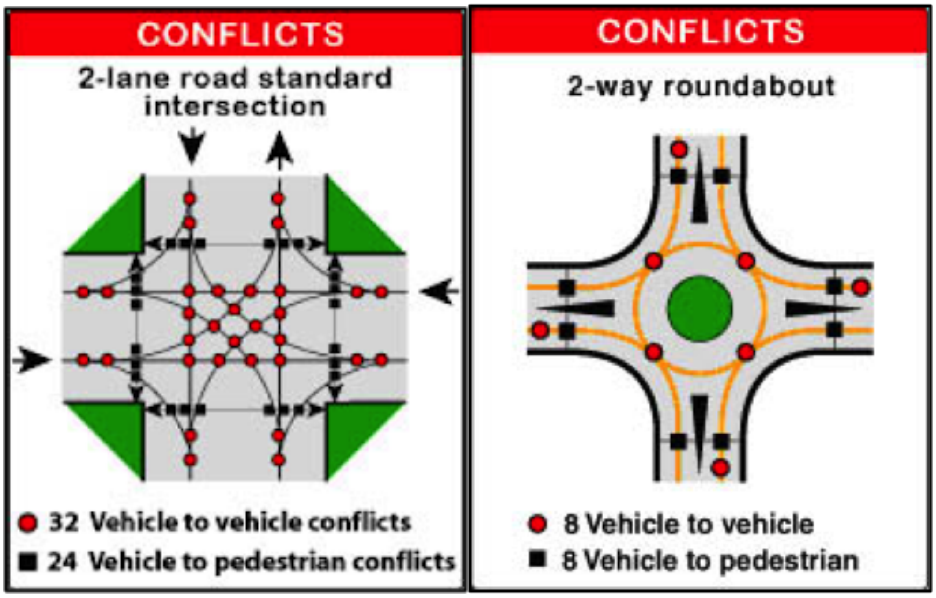
Refer to the City Manager:

1. Create the Community Common Space Stewardship Program as described below
2. Refer the additional staff and material costs of this program to the budget process.

CURRENT SITUATION AND ITS EFFECTS

Berkeley's traffic circle policy is being revised with the assistance of the Traffic Circle Policy Task Force, which was established by the Mayor of Berkeley on February 26, 2019 (Attachment 2). The Task Force is composed of interested community members from geographically diverse parts of the city, including Berkeley Partners for Parks, who maintain neighborhood traffic circles. The Task Force was charged with evaluating the current traffic circle vegetation policy, recommending appropriate characteristics for allowed plantings, recommending a policy that ensures sight lines for visibility, and working with the community to update the policy to ensure pedestrian, bicycle and vehicle safety, as well as beautification of traffic circles.

Neighborhood traffic circles are islands in the middle of intersections whose primary purpose is to calm and slow traffic. In contrast, larger circles such as the Marin circle, are designed to facilitate traffic flow and efficiency. Neighborhood traffic circles have been shown to reduce the speed of travel as well as reduce the number of collisions and injuries involving vehicles, pedestrians, and bicycles at these intersections. For example, "the Institute of Traffic Engineers (ITE) states that neighborhood traffic circles have been found to reduce…intersection collisions by up to 70%[1] Seattle WA, which has more than 1,200 circles and adds 5 each year, reports a roughly 90% reduction in collisions.[2] Similarly, Madison WI reports an average decrease of 70%[3]. A major benefit of traffic circles is that they reduce the number of conflict points, or locations where traffic crosses paths, as illustrated in the figures below. For example, vehicles do not need to cut directly in front of oncoming traffic to make a left turn. This tends to eliminate broadside hits, which are often the deadliest intersection crashes.



Comparing conflict points of a Traditional Intersection (left) with those of a Neighborhood Traffic Calming Circle (right).[4]

---

[1] Lupfer, Patrick. "Neighborhood Traffic Circles - Intersection of South Street and Intervale Road in Brookline, MA" (Calm Streets Boston, April 24, 2012)

[2] Marek, John. "Neighborhood Mini Traffic Circles: Seattle Washington" a case study of Countermeasures on the webpages BIKESAFE (pedbikesafe.org)

[3] Neighborhood Traffic Management Plan (City of Madison WI, November 2004)

[4] Lupfer, Patrick. "Neighborhood Traffic Circles - Intersection of South Street and Intervale Road in Brookline, MA" (Calm Streets Boston, April 24, 2012)

Berkeley has 62 neighborhood traffic circles; they represent a significant component of our streetscapes, shaping the safety and character of many neighborhoods, and improving public health while removing a half acre of asphalt. From a national perspective, low plantings and central trees are usual and customary practice for neighborhood traffic circles in cities throughout the country. These cities' policies recommend, encourage and support the inclusion of traffic circles with well-maintained trees and vegetation for their benefits to traffic calming, making traffic circles more visible and contributing to beautification, neighborhood character, and other benefits urban greening provides. Berkeley has numerous policies and plans that support traffic circles for traffic calming and other environmental and community benefits. Traffic circle trees and low vegetation are also recommended in national guidance by the Federal Highway Association and the National Association of City Transportation Officials.

Traffic circles provide many important benefits, including traffic calming and street safety. They also make important contributions to the City's climate, quality of life and social equity goals. Districts 2 and 3 which have the highest number of traffic circles[5] are also the City's most densely populated neighborhoods[6] and have the lowest ratio of parks and open space. Traffic circles ameliorate some of these inequities in urban greening by 1) reducing stormwater runoff and the Urban Heat Island Effect; 2) ameliorating current and projected increases in Extreme Heat Events[7]; and 3) increasing the tree canopy[8] and vegetation diversity in south-side areas. In light of the City's Declaration of a Climate Emergency[9] the Task Force wishes to emphasize that traffic circles contribute to the planted green space of our densely populated City neighborhoods.

---

[5] For a map of Berkeley traffic circles, see Appendix B in the Vegetation Subcommittee Report, Attachment 3.

[6] Population Density in Berkeley (Zip Atlas)

[7] *"Extreme heat events are a newly-introduced hazard of concern for the 2019 LHMP… By the end of the century, Bay Area residents may average six heat waves annually, which will average a length of ten days… Berkeley's urban forest…helps to mitigate the impacts of extreme heat events by shading buildings and paved and dark-colored surfaces, such as roads and parking lots that absorb and store heat…"* From the first complete draft of the *2019 Local Hazard Mitigation Plan* (p. ES-10, B-139, B-149; City of Berkeley)

[8] See Map 34 illustrating the inequitable distribution of tree canopy in Berkeley. *"The areas shaded in darker green, predominately in the hills in east Berkeley, have the greatest percentage of tree canopy, while west and south Berkeley have the least, meaning that these buildings and communities will likely not benefit from reduced temperatures provided by urban tree cover."* From the first complete draft of the *2019 Local Hazard Mitigation Plan* (p. B-154, B-155; City of Berkeley). Or page 6 of the attached Vegetation Subcommittee Report, Attachment 3.

[9] *Endorsing the Declaration of a Climate Emergency*, Resolution No. 68-486-N.S. (June 12, 2018; City of Berkeley

In the last five years there have been at least two serious collisions involving cars and pedestrians in the vicinity of traffic circle intersection.[10] In a lawsuit against the City of Berkeley in one case, the plaintiff's attorney alleged that the traffic circle vegetation obstructed the view of an approaching driver and contributed to the collision with a pedestrian. These accidents are the major reason the Task Force was established to develop an updated and well-founded set of policies to guide the establishment and maintenance of traffic circle vegetation.

At the meeting of October 2, 2019, the Traffic Circle Policy Task Force took the following action:

> Action: M/S/C (Steere/Grossinger) to approve changes to policy as discussed by members.
>
> Vote: Ayes: Wendy Alfsen, Steven Finacom, Robin Grossinger, Andrew Liu, Linda Franklin Diane Ross-Leech, John Steere, Diana Wood, Sally Hughes. Noes: None. Abstain: None. Absent: Erin Diehm, Yolanda Huang, Fred Krieger.

BACKGROUND AND RATIONALE FOR RECOMMENDATIONS

A. Traffic Circle Task Force Process

The Mayor's office hosted two community meetings on May 15 and May 29, 2019 where all interested community members were invited to participate and learn about the proposed Traffic Circle Policy Task Force, responsibilities, goals, deadlines and how to apply to the Task Force.

The Traffic Circle Policy Task Force held meetings on June 19, July 10, July 31, August 21, September 11 and October 2, 2019 where members of the public, in addition to the Traffic Circle Commissioners, had the opportunity to make public comments and participate in the general discussion. Agendas and minutes from these meetings can be found on the Traffic Circle Policy Task Force page on the city's website.

At its first official meeting, the Traffic Circle Policy Task Force invited the city's Traffic Engineer, Hamid Mostowfi, to address questions from the Task Force Commissioners.

---

[10] The Task Force notes that it received no data showing that Berkeley intersections that include traffic circles are associated with higher collision rates. In fact, based on data from other cities we would expect the collision rate to be significantly lower than traditional intersections. At writing no data has been provided to the Task Force comparing Berkeley's rate of collisions in traditional intersections (no circle) with those that have a circle (with and without a tree; before and after installation). We recommend the city conduct such an analysis to allow future iterations of the policy to be based on a better understanding of actual accident patterns.

The Traffic Engineer's primary concern with traffic circles is maintaining sight lines for visibility. With this background and the charge set out by the City Council and the Mayor, the Task Force set up three subcommittees to review Berkeley's own policies and plans as they relate to traffic circles and to gather additional information and research about traffic circles in other cities around the country. The Task Force also met twice with Farid Javandel, Traffic Division Manager.

The Vegetation Subcommittee examined the policies and characteristics of traffic circles in cities around the U. S. and Canada, reviewing standards for traffic circle vegetation in national guidance documents and in published policies of other cities and through interviews with traffic safety experts. In addition, the Vegetation Subcommittee interviewed traffic engineers, landscape architects, and traffic circle administrators from a number of other cities to understand perspectives on traffic circle landscaping. The Subcommittee found that landscaped plantings with trees are standard practice for neighborhood traffic circles in numerous cities across the country and are also recommended in the major national guidelines for traffic safety and urban design. For example, the U. S. Department of Transportation/Federal Highway Administration recommends including vegetation and trees to maximize the traffic calming effect:

> *"A traffic circle can simply be a painted area, but it is most effective when it is defined by a raised curb and landscaped to further reduce the open feel of a street.* ***A traffic circle can be landscaped with ground cover flowers, and street trees****."*[11] (emphasis added)

Traffic circles planted with trees are considered to contribute to traffic calming by reducing the open feel of the street and increasing the visibility of the circle, particularly at night, resulting in slower traffic speeds. Specifications for the height and clearance of vegetation are generally recommended for low landscaping and trees that provide clear sight lines.

The vegetation subcommittee revealed that specifications for vegetation height ranged from 2 to 5 feet (with our neighbor San Francisco allowing 3 feet[12]) and with tree limbs above 7-8 feet (14 feet if the limbs extend beyond the traffic circle planter curb into the travel lane). Keeping in mind the importance of public safety, the Vegetation Subcommittee used this information to inform the policy described below. (See Attachment 3 for additional details, including photos of traffic circles across 9 cities in the U.S. and Canada)

---

[11] *Traffic Calming ePrimer – Module 3* (U.S. Department of Transportation/Federal Highway Administration)
[12] *SFBetter Streets: A guide to making street improvements in San Francisco* (City and County of San Francisco 2015)

The Operation and Maintenance Subcommittee focused its research on successful community volunteer programs in other cities that Berkeley could replicate, such as Oakland's "Adopt a Spot" initiative. The subcommittee relied on previous research prepared by Berkeley Partners for Parks titled "Expanded Berkeley Partners for Parks Proposal to City of Berkeley Regarding Strengthening Volunteer Engagement by Establishing Citywide *Adopt a Spot* Program," (see Attachment 6). The Subcommittee further reviewed websites from various cities, including Oakland, to view program documents. All of the community volunteer programs have a more formal structure for their programs and volunteers than Berkeley. Typical elements include: a volunteer job description used for recruiting purposes; volunteer application or agreement with a minimum term; maintenance rules and guidelines; planting guidelines; and safety rules and guidelines all on the city's websites with easy to use on-line applications and approvals (see Attachment 4 for additional details).

The Policy Alignment Issues Subcommittee reviewed all of the City of Berkeley's applicable plans, policies and programs found on the city's website, as well as some state and regional plans and policies, to determine how the proposed traffic circle policy and actions would intersect. This subcommittee found overwhelming support and alignment among these documents. In particular, the Berkeley Bicycle Plan recommends additional traffic calming improvements along the Bicycle Boulevard network by adding 42 new traffic circles by 2035 (see Attachment 5 for additional details).

The subcommittee's comprehensive reports are Attachments 3, 4, and 5.

Other San Francisco Bay Area (e.g., San Francisco, Palo Alto) and North American cities and expert analysts beyond Berkeley have identified trees as a welcome and useful component of traffic circles, particularly because they help slow traffic and identify for drivers the presence of a circle from a distance. For example, the City of San Francisco recommends that:

> *"Traffic Calming Circles should be landscaped with trees or plantings.* ***Shrubs and grasses should be planted up to 3 feet tall and trees should be appropriately pruned****."*[13] (emphasis added)

These guidelines also allow for more than one tree, specifying the recommended number of trees in relation to circle size:

> *"In traffic calming circles with a diameter of less than 15 feet,* ***one tree should be planted in the center****. On a traffic calming circle with a diameter greater than 15*

[13] *SFBetter Streets: A guide to making street improvements in San Francisco* (City and County of San Francisco 2015)

> *feet,* ***more than 1 tree should be planted*** *and should be equally spaced around the circles."* (emphasis added)[14]

The Urban Street Design Guide, a manual developed by the National Association of City Transportation Officials (NACTO, an association of over 71 major North American Cities and 10 transit agencies) notes the value of trees and other vegetation not only for beautification, but also for their contribution to traffic calming. From the NACTO website:

> *"Mini roundabouts and neighborhood traffic circles lower speeds at minor intersection crossings…* ***Shrubs or trees in the roundabout further the traffic calming effect*** *and beautify the street, but need to be properly maintained so they do not hinder visibility."*[15] (emphasis added)

Whether community volunteers are experts or novices, everyone needs common sense guidelines for safely maintaining the traffic circles. Most of the cities that support volunteer programs have all of the documents on the city's website. These guidelines and best practices are important to help ensure that vegetation in traffic circles continues to contribute to traffic calming even as the seasons pass, climate change becomes a greater global issue, and volunteers come and go.

The traffic circle policy emphasizes a strict standard for the height of shrubby and herbaceous vegetation across the traffic circle. Such vegetation has the potential to create a visual barrier to drivers and pedestrians, particularly at the margins of circles where parties are closer to each other. We found that trees in the center area of circles are not considered to be a safety concern in the many other cities examined. Tree trunks create relatively small and momentary visual barriers, and only when parties are on the opposite sides of a circle. However, out of an abundance of caution, we also established guidelines for the width of tree trunks and other narrow vertical vegetation.

With limited time, the Task Force prioritized the development of a vegetation policy and a maintenance program. The following categories represent a good starting point for some of the guidelines that will be needed to support the Traffic Circle Policy and Community Common Space Stewardship Program (traffic circles are only one component of the Program).

Guidelines and Best Practices for Traffic Circles:

- General conduct, safety, tools, watering
- Managing sightlines and vegetation
- General layout/design for traffic circles

[14] Ibid.
[15] *Urban Street Design Guide* (National Association of City Transportation Officials 2013)

- Plant maintenance, pruning, weeding, new planting and tree replacement and/or removal
- Integrated Vegetation Management and Pest Control
- Garbage and Debris Removal
- Decorations, boulders, bird feeders, miscellaneous
- Coordinating with Public Works,
- Self-Certification of Compliance with Best Practices
- On-line Arc-GIS/Google Maps traffic circles GIS database

If authorized by Mayor and Council, The Traffic Circle Task Force will continue to work to develop recommended guidelines for many of these categories, relying on best practices and community knowledge and collaboration, and hopes to be able to do so as part of the integrated Community Common Space Stewardship Program / "Adopt a Spot Initiative".

B. Review of Existing Plans, Policies and Programs

The City of Berkeley General Plan directly addresses landscaped traffic circles and encourages their construction for traffic calming.

The 2009 City of Berkeley Climate Action Plan identifies traffic circles as essential to slow or reduce automobile traffic and make walking and bicycling safer. Traffic circles are recognized traffic calming measures on a local street with a complementary benefit of sequestering carbon in trees and plantings.

The Berkeley Pedestrian Master Plan strongly supports the traffic calming benefits and safety improvements provided by traffic circles.

The Berkeley Bicycle Plan supports traffic calming through various measures, including additional traffic circles along major Bicycle Boulevards to slow traffic and improve safety. The Design Specifications of the Plan includes a broad canopy tree in the center of the circle. (See Attachment 3 for the associated illustration.)

The "Vision Zero" Policy initiative is intended to create a transportation system with no fatalities or serious injuries involving road traffic. The Task Force strongly recommends that traffic circles be a part of the pending plan.

There are additional City of Berkeley plans and policies that support traffic circles, and more detail can be found in Attachment 5.

C. Traffic Circle Policy

PURPOSE

The purpose of this new policy is to identify the appropriate design, vegetation and operation characteristics of traffic circles that provide traffic calming, beautification, climate change mitigation and other benefits while maintaining pedestrian safety.

As proposed and documented in numerous City of Berkeley plans, programs and policies, the primary purpose of neighborhood traffic circles is for calming traffic and not facilitating its flow, as excess speed causes one in three traffic deaths[16], comparable to drunk driving. This purpose is important to highlight so that traffic circle elements, as well as additional, complementary safety measures are designed to support traffic calming and pedestrian safety goals. Many cities around the country and in California incorporate vegetation and trees in traffic circles as part of traffic calming measures. The goal of this policy is to develop guidelines ensuring that traffic circle vegetation and trees are maintained to conform to safety standards, thereby enhancing, rather than reducing, neighborhood safety.

GRANDFATHERING EXISTING TREES

Berkeley has a variety of existing trees in its traffic circles, such as Coast Live Oaks, California Buckeyes, Dawn Redwoods, Olives, and other trees. All existing trees that are structurally safe are permitted by this policy[17]. For trees with trunks that exceed 20" in diameter see the section "TREE TRUNKS WIDER THAN 20 INCHES" below, which outlines how additional traffic calming measures will be incorporated into the traffic circle intersection to ensure safety.

VEGETATION AND NEW TREES

Beautiful, healthy, and well-maintained vegetation and trees in traffic circles supports Berkeley's neighborhood quality of life and contributes to traffic calming. Circle plantings should be durable, diverse, attractive and planted and maintained by community volunteers. Volunteer participation adds to the unique character of our neighborhood and creates strong resident commitment to our urban communities. Planted circles improve storm water retention and are strongly encouraged to use native or other plant species that do not require pesticides or herbicides to maintain them. Traffic circles should be planted with consideration of vegetation and tree's mature shape and size and sightline requirements. There are several suggested palettes for those who find suggestions helpful (see Attachment 3).

---

[16] *Motor Vehicle Crash Deaths: How is the US doing?* (Centers for Disease Control and Prevention)
[17] Designated historic resources are regulated by the Landmarks Preservation Ordinance, and may have features that do not conform to these policies. In case of conflict, the city shall follow established procedures for alterations to a designated landmark. Landmarks Ordinance prevails.

New trees proposed by traffic circle coordinators or volunteers will be approved by the Forestry Supervisor, with a preference for natives and a focus on maximizing ecosystem services.

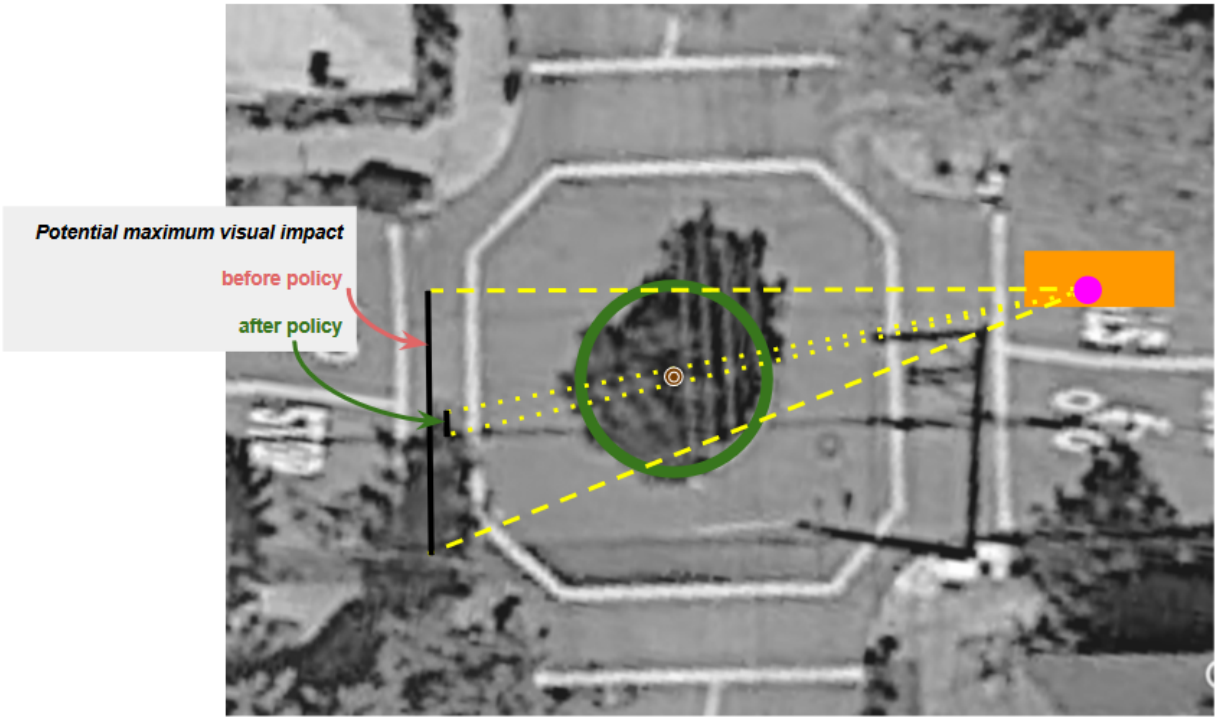
The Task Force recommends revisiting trunk size considerations every five years as the implications of climate change and autonomous vehicles become clearer. In the interim, large trunked trees such as redwoods will not be planted.

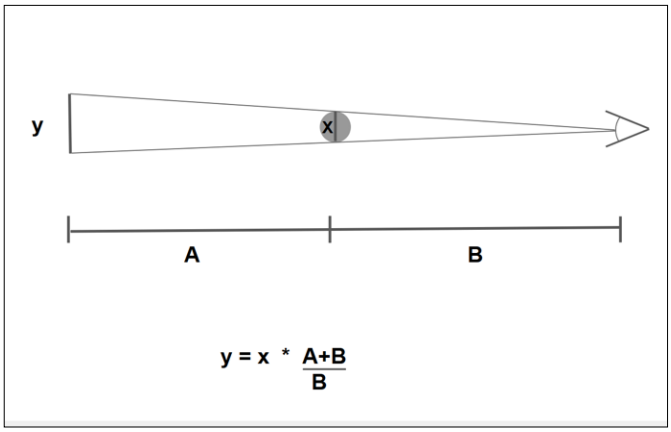
SIGHTLINES

Visual sight lines – the unobstructed view of the driver[18] stopped before entering the near crosswalk to the corners of the opposite crosswalk [see Figure X below] – should guide all vegetation selection and maintenance criteria. Based on the City of Berkeley's Traffic Engineer's opinion and researched best practice, low vegetation should be maintained at a maximum height of 2.5 feet from the top of the traffic circle planter curb and a mature tree canopy should be pruned and trimmed up to and maintained at 7-8 feet height above the top of the traffic circle planter curb. Limbs that extend beyond the curb should be trimmed to 14 feet above the adjacent road surface within the road right-of-way. Single tree trunks that are less than 20" in width, as measured 4 feet above the ground, do not require any additional traffic calming devices. Low branches on young trees and/or flower stalks extending above the 2.5 feet maximum height shall be permitted as long as the total visual obstruction above 2.5 feet is no more than 20" across the circle.[19,20]

[18] By national standards it is assumed that drivers' eyes are at three and a half feet and ability to see an object one foot tall on the ground.[cite?]
[19] A tree in the center of a traffic circle can only create a visual impact when objects are on directly opposite sides of the circle. These specifications to trunk size and vegetation height provide a conservative safety margin for visual impacts.
[20] Sight lines are defined as that horizontal plane (called the sight triangle), from the view of the driver stopped before entering the crosswalk to the corners of the opposite intersection, from 2.5ft above the top of the traffic circle planter curb line to the height of 7-8 feet.

Figure x: Traffic Circle Sightlines and Geometry





TREE TRUNKS WIDER THAN 20 INCHES

Tree trunks wider than 20 inches will be permitted with additional traffic calming measures, such as speed tables or cushions, diagonal diverters or flashing beacons to

ensure slow speeds[21], additional stop signs or traffic mirrors to increase visibility,[22,23] established around the intersection. City staff and neighborhood traffic circle volunteers will work together to determine what measures are needed and which ones are best suited for installation. Where funding restrictions are a significant restriction, traffic circle coordinators or volunteers will be given a reasonable amount of time for community fundraising to offset the cost of additional traffic calming measures.

SUMMARY OF POLICY RECOMMENDATIONS

Neighborhood communities and traffic circle volunteers care a great deal for their circle plantings and should be provided an opportunity to bring their trees and vegetation into conformance with the sight line maintenance guidelines within 30 days following notice of adoption or, in the future, of non-compliance. The Forestry Supervisor may provide guidance on how best to prune vegetation and trees to accomplish the sight lines or to suggest alternative plantings whose growth patterns would naturally conform. The Urban Forestry Unit of the Parks Division, will maintain the tree branches above the travelled way to ensure they are at least 14 feet from the road surface.

The City supports community volunteer contributions and recognizes and acknowledges that community volunteers give a considerable amount of free time to maintain the City's open spaces, including traffic circles. Community volunteers are encouraged to contribute in a safe and reasonable manner and to follow guidelines developed by the Community Common Space Stewardship Program.

Summary of Policy Recommendations for Traffic Circle Vegetation:

- The primary purpose of neighborhood traffic circles is for traffic calming.
- Sightlines should be maintained at a maximum height of 2.5 feet from the top of the traffic circle planter curb and a mature tree canopy should be pruned up to 7-8 feet above the traffic circle planter curb.
- Trees and other vegetation that conform to sightline and pruning maintenance are allowed. Total vegetation and signage extending above the 2.5 foot height maximum should not exceed a 20 inch wide solid sight obstruction.

---

[21] The Federal Highway Administration website provides data summarizing studies on engineering countermeasures used to manage speeds and lists the speed reductions for different kinds of traffic calming measures. Per the extensive table, Speed Cushions and Tables reduce the 85th %tile Speed by 5 to 9 mph. (US Department of Transportation/Federal Highway Administration. Engineering Speed Management Countermeasures: A Desktop Reference of Potential Effectiveness in Reducing Speed, July 2014)

[22] https://www.nationalsafetymirror.com/driveway-mirror-traffic-mirrors/

[23] The trees in the traffic island at Woolsey & Wheeler should be exempted from these rules due to the unique shape of the traffic island, its location outside of the actual intersection, and the presence of traffic dividers.

- Trees with trunks wider than 20 inches will be permitted with additional traffic calming measures established around the intersection to ensure low speeds and safe intersections. City staff and neighborhood traffic circle volunteers will work together to determine what measures are needed and which ones are the most appropriate for installation.
- Traffic circle volunteers will be provided an opportunity to bring trees and vegetation into conformance with the sightline maintenance guidelines within 30 days following notice[24] of non-compliance, before the City undertakes maintenance to bring the circle vegetation or trees into sightline compliance.
- The City should develop and implement consistent traffic circle signing and speed limit standards for the Program which will be implemented as soon as feasible.

D. Community Common Space Stewardship Program

Berkeley has many engaged community members who volunteer their time and resources. Community volunteers and neighborhoods have been the mainstay of the traffic circles – generously buying plants and giving their time to water and maintain the traffic circles and other common space (i.e. Berkeley Path Wanderers) over the last two decades.

There is no formal mechanism for the City to engage these volunteers or to recruit new ones. There are many existing community-based partnership programs in the San Francisco Bay Area as well as around the country. The City of Oakland's "Adopt a Spot" is a long-standing and successful model that has also served as a template for similar programs in Livermore and Richmond, and is fortunately being considered as a template for the City of Berkeley's Program. A Berkeley Stewardship Program will encourage civic engagement and community improvement

The City can establish and operate a successful partnership program with community volunteers to provide coordination and guidance on safety and technical issues, hosting work days, developing discount programs, and supporting community improvement and agreed upon goals.

Berkeley City leaders expressed their willingness to work with the community and to develop a real partnership with the community by creating and supporting the establishment of the Traffic Circle Policy Task Force. A formal partnership needs a shared commitment and written guidelines, structure, budget and resources to deliver the benefits to both the City and the community.

[24] Notice of non-compliance is a standard vegetation maintenance enforcement procedure. It is recommended that the notice be sent via the Stewardship Program.

The Traffic Circle Policy Task Force recommends that the Public Works Department, in no less than three months, formalize the existing traffic circle community volunteer program and establish it as a component of the Community Common Space Stewardship Program (Stewardship Program. It is recommended that the Stewardship Program be integrated into the "Adopt a Spot Initiative," which the City Council approved on April 23, 2019 (Item #33), and that the City Council refer the Adopt a Spot Initiative to the Traffic Circle Task Force for the purpose of developing a coherent and consistent set of guidelines for City/volunteer partnership on volunteer efforts for not just traffic circles but also other City common space, such as medians, bulb-outs, mid-block curb extensions and pocket parks. This Stewardship Program will define responsibilities between City and community volunteers and provide guidance for volunteer responsibilities including selection of plants and trees, maintenance best practices and safety guidelines. The Stewardship Program will also investigate and develop a much needed program analysis including criteria, environmental benefits, program costs and staffing needs.

The goals of the Traffic Circle component of the Community Common Space Stewardship Program include:

- Ensure community engagement and partnership in complying with the Traffic Circle Policy
- Maximizing traffic calming benefits of traffic circles
- Maintain sightline visibility to protect pedestrians and bicyclists
- Expand the network of neighborhood traffic circles to underserved areas

And in addition, the Community Common Space Stewardship Program will:

- Help beautify Berkeley - *Greenery in and along streets makes Berkeley a more beautiful city and is critical to Berkeley's livability and success as a place*
- Encourage joint activities by neighbors and friends for the betterment of Berkeley
- Provide spaces that capture and infiltrate rainfall and storm water
- Reduce noise pollution through the use of vegetation and trees
- Provide habitat for birds, butterflies, bees, and other native creatures
- Increase carbon sequestration
- Help cool the urban environment

In order to establish and operate a successful partnership program, staff resources are required. Staffing could be provided through the City or through an existing non-profit entity that would be contracted for staff resources (at this point it's not clear if this would be a full-time position or could be part time after the program is set up).

A Traffic Circle Community Engagement Coordinator would report to Public Works and be responsible for coordinating with all existing traffic circle volunteers, recruiting new volunteers, act as a liaison between community volunteers and City staff, coordinate between Public Works, Parks and Recreation and Planning Departments as well as third-party utilities, and develop and maintain an on-line tool for tracking traffic circle compliance and administration. The Coordinator would also be responsible for developing an annual budget, hosting annual work days, provide assistance with technical issues, and develop a plant discount program, free mulch delivery, tool and safety equipment lending library, seeking additional outside funding and a green infrastructure mini-grants program with matching funds and/or in-kind support.

The Coordinator and City leaders should explore consolidating all resources and responsibilities for traffic calming measures (traffic circles, bulb-outs, mid-block curb extensions, traffic diverter replacement/conversions, parklets and other speed calming treatments) as well as supporting the Berkeley Bicycle Plan under the Community Common Space Stewardship Program. The core goal of this position should be nurturing and supporting a Citywide and expanding program of traffic circles that are both beautiful and safe and that make use of community volunteer resources, while also coordinating City staff resources and interests as they apply.

It should be noted that this position could also be defined to coordinate City staff and volunteer stewardship resources (through friends of parks and creeks groups) and efforts associated with maintaining and enhancing city parks, creeks, and open spaces. In this case, additional staff capacity would likely be required.

All of the community volunteer programs that the Traffic Circle Policy Task Force reviewed have a more formal structure for their programs and volunteers. Typical elements include: a volunteer job description used for recruiting purposes, volunteer application or agreement with a minimum term, maintenance rules and guidelines, planting guidelines, and safety rules and guidelines. Public Works should borrow from the best programs, specifically Oakland's "Adopt a Spot," to develop the documents needed to support the program. All Program documents should be maintained on the City's website with easy to use on-line applications and approvals.

This proposed Program and its recommendations are designed in part to reduce City liability and risk from traffic circles. By the same token, the City should be willing to extend protection from liability to neighborhood volunteers who maintain traffic circles

and are in compliance with the Program. The advice of the City Attorney and specialized legal experts on municipal volunteer programs should be sought in formalizing this two-way arrangement.

Communication Plan

The Traffic Circle Policy Task Force's report and recommendations and the City's approval and adoption is only the first step to implementation. Any changes to the status quo will be new and possibly startling to the community. A thoughtful and robust communication plan should be developed and implemented within a set time period in concert with rolling out the new policy and program. Particular attention should be paid to the initial effort to bring existing circles into compliance. Based on a recent photo survey, there are a few traffic circles that have vegetation that will not easily be brought into compliance. For example, some circles have large cacti that cannot be "pruned" to achieve the sightline requirements. The city should consider organizing a large work day to support the removal of non-compliant existing plants and provide support to community members in planting new, better suited vegetation.

The Task Force Commissioners should be given a prominent role to assist the City with explaining the Program through open houses, newsletters, press, social media and neighborhood meetings. This process may also be used to ensure current traffic circle volunteers are identified and new ones recruited.

Incentives for Recruiting Volunteers

Public Works should strive to be seen as an ally and support for the community volunteers with expertise and resources to support them and the Program. Public Works and the Community Engagement Coordinator should investigate incentives to help recruit additional community volunteers, especially in under-represented neighborhoods of the City. These incentives could include: a plant discount program, free mulch delivery, tool and safety equipment lending library, green infrastructure mini-grants program with matching funds and/or in-kind support.

On-line GIS Tool

Public Works and the Community Engagement Coordinator should develop and implement an on-line GIS tool to map all traffic circles and monitor overall compliance with the sight line maintenance guidelines, operation and maintenance guidelines and plant palette guidance.

Advisory Board

The Task Force recommends that Public Works establish an advisory board comprised of leaders within Public Works, Parks, Recreation and Waterfront, and Planning Departments and a representative group of relevant Commission representatives and community volunteers to meet periodically to review the Programs progress. Note, we are not suggesting a new commission.

Annual Compliance Report

Public Works and the Community Engagement Coordinator should produce an annual report to the Berkeley City Manager, City Council, and the public on overall progress and compliance.

Additional Traffic Circle Safety Improvements

The City should inventory all existing traffic circle intersections and develop and implement consistent traffic circle signing and speed limit standards. Effective and safe traffic circles don't end at the curb line. The City should work towards other holistic street improvements and modifications to continue to improve safety at traffic circle intersections. Pedestrians, bicyclists and motor vehicle drivers should be able to expect consistency in City traffic circles operations. It could often be this uncertainty – the driver, bicyclist or pedestrian who doesn't realize they've come to a two-way, not four-way stop sign circle intersection – that increases hazards, not the existence or character of the traffic circle itself or its vegetation.

ENVIRONMENTAL SUSTAINABILITY

The Task Force found overwhelming support and alignment for the recommended action and the city's existing environmental sustainability plans, programs and policies.

Promoting additional tree planting and native drought tolerant vegetation in existing neighborhood traffic circles directly supports the Berkeley Climate Action Plan to restore natural processes, provide habitat for birds and insects, reduce ambient temperatures by shading, intercepting and storing rainwater, improving community quality of life through beautification and by reducing noise pollution and encouraging pedestrian traffic. Increasing the number of neighborhood traffic circles and planting them with trees will help fulfill the stated goals to maximize tree plantings, sequester carbon and protect biodiversity.

Half an acre of forest land can absorb three tons of carbon dioxide annually and produce two tons of oxygen. Berkeley's 62 existing traffic circles cover about half an acre of land, all of it converted from asphalt. The City's Hazard Mitigation Plan and Climate Action Plan recommend more tree plantings in Berkeley to help fight climate

change and reduce the "heat island effect" in lower elevation neighborhoods. Tree plantings are also an economic and social equity issue. City mapping shows that tree cover is much higher in the Berkeley Hills than it is in the Flatlands.

The recommended action is consistent with Berkeley's history of neighborhood partnership for creating and caretaking traffic circles, as is common in many other cities, and with the goal of increasing green space and tree canopy in neighborhoods with less access to parks and open space.

The recommended action enables neighborhood traffic circles to contribute to the support of native biodiversity within the City, through the habitat contributed by native plants and trees. The Task Force provides several plant palettes of native plant assemblages designed to maximize biodiversity as well as other valuable services such as pollinator support, water conservation, runoff reduction, and carbon sequestration.

ALTERNATIVE ACTIONS CONSIDERED

No Action Alternative isn't viable because it doesn't address traffic safety concerns or provide clarity to the volunteers currently maintaining the existing traffic circles. There's confusion by the volunteer community about what the rules are for traffic circles, who is responsible for what and if trees in circles are allowed.

No Trees Alternative is not recommended because it is contrary to standard practice by many California and national cities, as well as Berkeley plans and policies. There are 37 existing traffic circles that have trees that are maintained by volunteers. The community has already expressed significant concern when the City proposed in the summer of 2018 to remove all trees and other large vegetation in existing traffic circles.

No Volunteers Alternative is not recommended because it goes against the spirit of how the City governs. The City has partnered with its citizens on their stewardship of the traffic circles for almost two decades. It is in the City's interest to formalize and support community involvement to maintain the traffic circles.

Administrative Department Move Alternative – to move traffic circle administration from Public Works to Parks, Recreation and Waterfront Department - is not recommended because the Public Works Department is responsible for construction and maintenance of all streets and the right-of-way. The Public Works Department has oversight and approval responsibility for traffic circles including construction, maintenance (in coordination with local community groups), and vegetation.

FISCAL IMPACTS OF RECOMMENDATION

The recommended action to develop a formal Stewardship Program with one full time staff in the Public Works Department represents a new cost to the City. The cost will be

the salary and overhead for a full time Community Engagement Coordinator position and the costs to administer the program, including setting up an on-line GIS web-based tool, developing the community volunteer program, finalizing operation and maintenance guidelines, finalizing planting palette guidance, developing a self-certification process, and setting up discount and mini-grant programs. It should be recognized that in the long term, the Stewardship Program/Adopt a Spot will, in fact, be a net cost savings for the City for the maintenance and planting "services" rendered by volunteers that would otherwise have to be performed by City staff or contractors. Having this program would also be advantageous for the City whenever it pursues project grants, as a source of in-kind/match funding.

In the long term, through efficiencies and "normalizing" the work of the program, these start-up costs are anticipated to decrease.

The overall total costs to the City should substantially decrease due to the program reducing injuries and lawsuits, minimizing the safety risks and uncertainty associated with the existing traffic circles. The benefits to establishing a formal, staffed program should greatly outweigh these costs.

CONTACT PERSON
Tano Trachtenberg, Legislative Aide, Office of Mayor Arreguín, 510-981-7100

Attachments:

1. Resolution to Adopt Traffic Circle Policy and Exhibit A
2. February 26, 2019 Berkeley City Council Item
3. September 29, 2019 Vegetation Subcommittee Report
4. July 19, 2019 Operation and Maintenance Subcommittee Report
5. July 19, 2018 Policy Alignment Issues Subcommittee Report
6. Expanded Berkeley Partners for Parks Proposal
7. Draft "Best Practices" Guidelines - Operation and Maintenance Subcommittee

RESOLUTION NO. ##,###-N.S.

Traffic Circle Policy

WHEREAS, Berkeley has 62 neighborhood traffic circles, that constitute a half-acre of permeable green space that would otherwise be filled with asphalt; and

WHEREAS, Traffic circles have been shown to reduce the speed of travel as well as reduce the number of collisions involving vehicles, pedestrians, and bicycles at these intersections; and

WHEREAS, Across the country, traffic circles with well-maintained low plantings and central trees are widely encouraged due to their benefits to traffic calming, making circles more visible and their contribution to beautification, neighborhood character, urban greening; and

WHEREAS, The Urban Street Design Guide, a manual developed by the National Association of City Transportation Officials (an association of over 71 major North American Cities and 10 transit agencies) notes the value of trees and other vegetation not only for beautification, but for their contribution to traffic calming and

WHEREAS, Other San Francisco Bay Area and North American cities and expert analysts beyond Berkeley have identified trees as a welcome and useful component of traffic circles, particularly because they help slow traffic and identify for drivers the presence of a circle from a distance; and

WHEREAS, The climate and biodiversity crises, including recent recognition of bird and insect declines, necessitate the support of trees, native plants, and other high value habitat in city spaces.

WHEREAS, Berkeley has numerous policies and plans that support traffic circles for traffic calming and other environmental and community benefits such as the Climate Action Plan, General Plan, Pedestrian Plan and Bicycle Plan; and

WHEREAS, The City Council established the Traffic Circle Task Force on February 26, 2019 with the charge of evaluating the current traffic circle vegetation policy, recommending appropriate characteristics for allowed plantings, and a policy that ensures sight lines for visibility, pedestrian, bicycle and vehicle safety, as well as beautification of the circles.

NOW THEREFORE, BE IT RESOLVED that the Berkeley City Council adopts the Traffic Circle Policy in Exhibit A.

Exhibits:
A: Traffic Circle Policy

Exhibit A

Traffic Circle Policy

PURPOSE

The purpose of this new policy is to identify the appropriate design, vegetation and operation characteristics of traffic circles that provide both traffic calming, beautification and other benefits while maintaining pedestrian safety.

As proposed and documented in numerous City of Berkeley plans, programs and policies, the primary purpose of neighborhood traffic circles is for traffic calming. This purpose is important to highlight so that traffic circle elements, as well as additional, complementary safety measures are designed to support traffic calming and pedestrian safety goals. Many cities around the country and in California incorporate vegetation and trees in traffic circles as part of traffic calming measures. Excess speed causes one in three traffic deaths[25], comparable to drunk driving. The goal of this policy is to develop guidelines ensuring that traffic circle vegetation and trees are maintained to conform to safety standards, thereby enhancing, rather than reducing, neighborhood safety.

GRANDFATHERING EXISTING TREES

Berkeley has a variety of existing trees in its traffic circles, such as Coast Live Oaks, California Buckeyes, Dawn Redwoods, Olives, and other trees. All existing trees that are structurally safe are permitted by this policy[26]. For trees with trunks that exceed 20" in diameter see the section "TREE TRUNKS WIDER THAN 20 INCHES" below, which outlines how additional traffic calming measures will be incorporated into the traffic circle intersection to ensure safety.

VEGETATION AND NEW TREES

Beautiful, healthy, and well-maintained vegetation and trees in traffic circles supports Berkeley's neighborhood quality of life and contributes to traffic calming. Circle plantings should be durable, diverse, attractive and planted and maintained by community

[25] *Motor Vehicle Crash Deaths: How is the US doing?* (Centers for Disease Control and Prevention)
[26] Designated historic resources are regulated by the Landmarks Preservation Ordinance, and may have features that do not conform to these policies. In case of conflict, the city shall follow established procedures for alterations to a designated landmark. Landmarks Ordinance prevails.

volunteers. Volunteer participation adds to the unique character of our neighborhood and creates strong resident commitment to our urban communities. Planted circles improve storm water retention and are strongly encouraged to use native or other plant species that do not require pesticides or herbicides to maintain them. Traffic circles should be planted with consideration of vegetation and tree's mature shape and size and sightline requirements. There are several suggested palettes for those who find suggestions helpful (see Attachment 3).

New trees proposed by traffic circle coordinators or volunteers will be approved by the City Forester, with a preference for natives and a focus on maximizing ecosystem services.

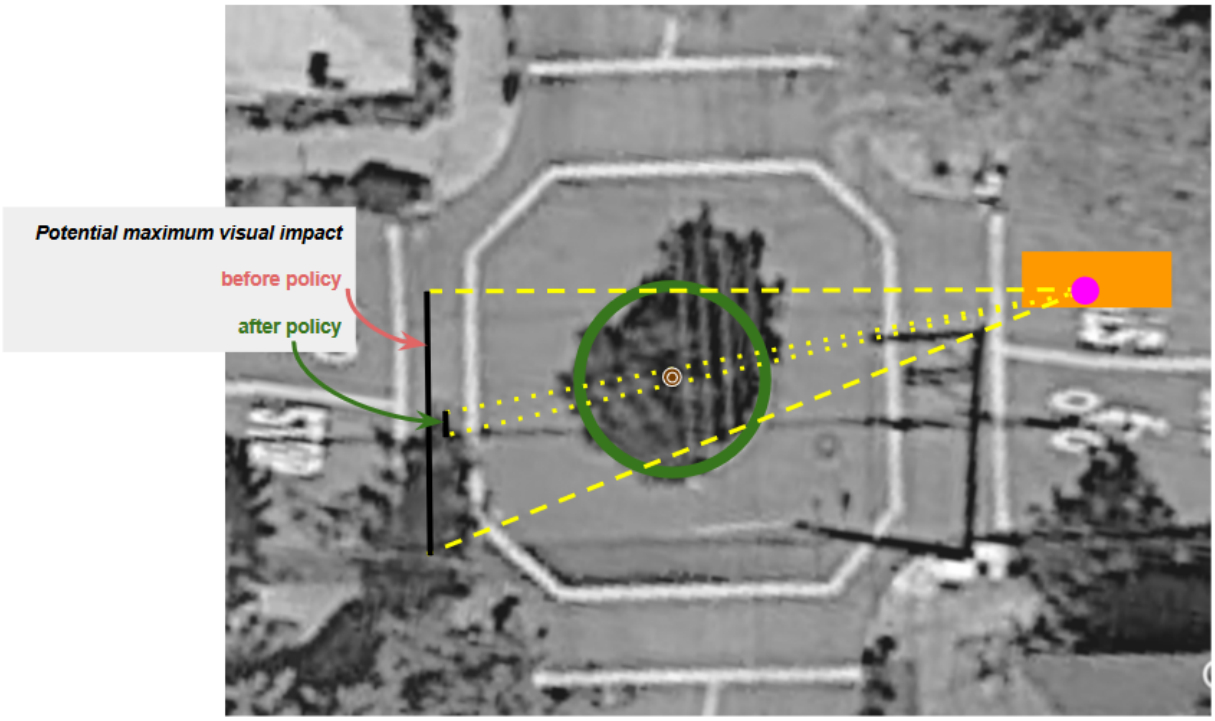
The Task Force recommends revisiting trunk size considerations every five years as the implications of climate change and autonomous vehicles become clearer. In the interim, large trunked trees such as redwoods will not be planted.

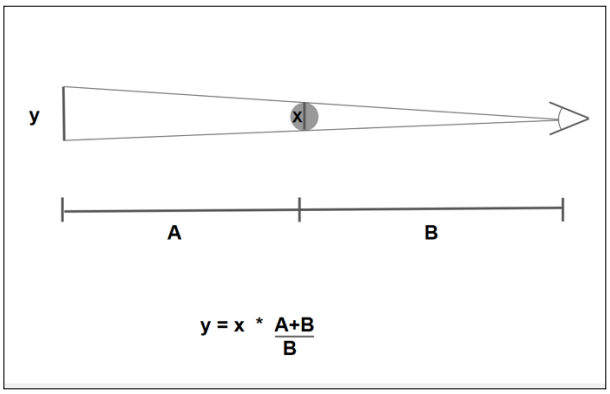
SIGHTLINES

Visual sight lines – the unobstructed view of the driver[27] stopped before entering the near crosswalk to the corners of the opposite crosswalk [see illustration below] – should guide all vegetation selection and maintenance criteria. Based on the City of Berkeley's Traffic Engineer's opinion and researched best practice, low vegetation should be maintained at a maximum height of 2.5 feet from the top of the traffic circle planter curb and a mature tree canopy should be pruned and trimmed up to and maintained at 7-8 feet height above the top of the traffic circle planter curb. Limbs that extend beyond the curb should be trimmed to 14 feet above the adjacent road surface within the road right-of-way. Single tree trunks that are less than 20" in width, as measured 4 feet above the ground, do not require any additional traffic calming devices. Low branches on young trees and/or flower stalks extending above the 2.5 feet maximum height shall be permitted as long as the total visual obstruction above 2.5 feet is no more than 20" across the circle.[28][29]

Figure X. Traffic Circle Sightlines and Geometry

[27] By national standards it is assumed that drivers' eyes are at three and a half feet and ability to see an object one foot tall on the ground.
[28] A tree in the center of a traffic circle can only create a visual impact when objects are on directly opposite sides of the circle. These specifications to trunk size and vegetation height provide a conservative safety margin for visual impacts.
[29] Sight lines are defined as that horizontal plane (called the sight triangle), from the view of the driver stopped before entering the crosswalk to the corners of the opposite intersection, from 2.5ft above the top of the traffic circle planter curb line to the height of 7-8 feet.





TREE TRUNKS WIDER THAN 20 INCHES

Tree trunks wider than 20 inches will be permitted with additional traffic calming measures, such as speed tables or cushions[30], diagonal diverters or flashing beacons to

[30] The Federal Highway Administration website provides data summarizing studies on engineering countermeasures used to manage speeds and lists the speed reductions for different kinds of traffic calming measures. Per the extensive table, Speed Cushions and Tables reduce the 85th %tile Speed by 5 to 9 mph. (US Department of Transportation/Federal Highway Administration. Engineering Speed

ensure slow speeds, additional stop signs or traffic mirrors to increase visibility,[31,32] established around the intersection. City staff and neighborhood traffic circle volunteers will work together to determine what measures are needed and which ones are best suited for installation. Where funding restrictions are a significant restriction, traffic circle coordinators or volunteers will be given a reasonable amount of time for community fundraising to offset the cost of additional traffic calming measures.

SUMMARY OF POLICY RECOMMENDATIONS

Neighborhood communities and traffic circle volunteers care a great deal for their circle plantings and should be provided an opportunity to bring their trees and vegetation into conformance with the sight line maintenance guidelines within 30 days following notice of adoption or, in the future, of non-compliance. The Forestry Supervisor may provide guidance on how best to prune vegetation and trees to accomplish the sight lines or to suggest alternative plantings whose growth patterns would naturally conform. The Urban Forestry Unit of the Parks Division, will maintain the tree branches above the travelled way to ensure they are at least 14 feet from the road surface.

The City supports community volunteer contributions and recognizes and acknowledges that community volunteers give a considerable amount of free time to maintain the City's open spaces, including traffic circles. Community volunteers are encouraged to contribute in a safe and reasonable manner and to follow guidelines developed by the Community Common Space Stewardship Program.

Summary of Policy Recommendations for Traffic Circle Vegetation:

- The primary purpose of neighborhood traffic circles is for traffic calming.
- Sightlines should be maintained at a maximum height of 2.5 feet from the top of the traffic circle planter curb and a mature tree canopy should be pruned up to 7-8 feet above the traffic circle planter curb.
- Trees and other vegetation that conform with sightline and pruning maintenance are allowed. Total vegetation and signage extending above the 2.5 foot height maximum should not exceed a 20 inch wide solid sight obstruction.
- Trees with trunks wider than 20 inches will be permitted with additional traffic calming measures established around the intersection to ensure low speeds and safe intersections. City staff and neighborhood traffic circle volunteers will work together to determine what measures are needed and which ones are the most appropriate for installation.

Management Countermeasures: A Desktop Reference of Potential Effectiveness in Reducing Speed, July 2014)

[31] https://www.nationalsafetymirror.com/driveway-mirror-traffic-mirrors/

[32] The trees in the traffic island at Woolsey & Wheeler should be exempted from these rules due to the unique shape of the traffic island, its location outside of the actual intersection, and the presence of traffic dividers.

- Traffic circle volunteers will be provided an opportunity to bring trees and vegetation into conformance with the sightline maintenance guidelines within 30 days following notice[33] of non-compliance, before the City undertakes maintenance to bring the circle vegetation or trees into sightline compliance.
- The City should develop and implement consistent traffic circle signing and speed limit standards for the Program which will be implemented as soon as feasible.

[33] Notice of non-compliance is a standard vegetation maintenance enforcement procedure. It is recommended that the notice be sent via the Stewardship Program.

Office of the Mayor

12

CONSENT CALENDAR
February 26, 2019

To: Members of the City Council

From: Mayor Jesse Arreguin, and Councilmembers Ben Bartlett, Lori Droste and Sophie Hahn

Subject: Establishment of Traffic Circle Policy Task Force

RECOMMENDATION
Establish a Traffic Circle Policy Task Force comprised of representatives from neighborhoods currently maintaining traffic circles. Members will be appointed by the Mayor and chosen from geographically diverse parts of the city, including one representative from Berkeley Partners for Parks. Staff participating will be appointed by the City Manager.

The charge of this Task Force is to:

1. Evaluate the City's current traffic circle vegetation policy for consideration by the City Council and Traffic Engineer;
2. Find a solution, through active participation and engagement with the community, that respects:
    - Environmental Policy
    - Habitat
    - Safety and Performance Standards
    - Existing and future liability issues that address sight lines; and
3. Deliver a policy to City Council for adoption prior to August 9, 2019.
4. Conduct a community-led process to update that policy to ensure pedestrian/bicycle/ vehicle safety and community efforts to beautify traffic circles.

Task Force activities may include, but are not limited to:

- Recommend appropriate characteristics and parameters for allowed plantings based on input from the community and city staff;
- Recommend a policy that ensures lines of sight and other important safety considerations;
- Work with City staff to conduct a survey of current traffic circles and their vegetation;
- Conduct a survey of neighborhood associations, neighborhood captains, community and community groups such as Berkeley Partners for Parks to determine which traffic circles are being maintained by community members;
- Examine the City of Oakland's 'Adopt a Spot' initiative to encourage community involvement in the maintenance of public spaces by loaning tools, supplies, and technical assistance to committed members of the community;
- Host a presentation from City staff to better understand concerns with the current traffic circle policy and any safety concerns that should be taken into consideration;
- Recommend a clear set of guidelines/criteria to allow for community maintenance of traffic circles, with input from city staff;

- Outline the appropriate community outreach strategy and process to share the updated policy for managing vegetation in traffic circles;
- Recommend a replanting strategy, with emphasis on drought-resistant plants.

BACKGROUND
In the summer of 2018 in response to a legal settlement agreement, the Public Works Department provided notice to all neighbors responsible for the maintenance of traffic circle vegetation, informing them that the City would be removing trees and other large vegetation that obscures line of sight and poses a safety risk.

This communication elicited significant concern from the community. Residents responded by asking for more outreach and engagement of neighborhood traffic circle volunteers, particularly regarding decisions on the removal of vegetation or updates to policy. The current Traffic Circle Planting and Maintenance policy, last updated in 2012, prohibits vegetation over two feet in height and/or six inches in diameter, yet there are many trees that exceed these limit in traffic circles. There is a need to update this policy to reflect current conditions and to ensure ongoing maintenance that improves safety at these intersections.

On August 8, 2018, the Mayor, Councilmembers and City staff held a public meeting where many of the traffic circle volunteers attended along with Berkeley Partners for Parks. A major takeaway was a strong desire by many for a more formal process to engage neighborhood volunteers and other stakeholders in updating the current Traffic Circle policy.

On September 25, 2018, the City Council unanimously referred to the Parks and Transportation Commissions to create a city/community task force on Traffic Circle vegetation maintenance. Since the Council's referral, the Parks Commission was informed that they do not have the authority to establish a Task Force, and that Council action is required.

A stakeholder task force would be the most strategic, effective, and appropriate approach to respond to the community's substantial interest in, and continuing care for, the circles. The City has partnered with its citizens on their stewardship for almost two decades. Now is the ideal time to revisit, enhance and formalize that partnership, support community involvement and work together to address important safety concerns. To help meet the spirit and desired follow up of the August 8th community meeting, it is important for community members to have representatives actively participating in and contributing to discussions about the traffic circles.

FINANCIAL IMPLICATIONS
Costs associated with staffing the Traffic Circle Task Force, hosting community meetings and developing a new Traffic Circle Planting Policy.

ENVIRONMENTAL SUSTAINABILITY
Supports the City's Climate Emergency Declaration, the City's Climate Action Plan and commitment to Vision Zero.

CONTACT PERSON
Mayor Jesse Arreguin (510) 981-7100

Attachment 3

Traffic Circle Task Force Vegetation Subcommittee Report
July 22, 2019 Last updated Sept 30, 2019

Members: Robin Grossinger (chair) Yolanda Huang, Erin Diehm, Sally Hughes, Andy Liu, and Diana Wood

Summary

Low plantings and central trees are usual and customary practice for neighborhood traffic circles in cities throughout the US. Cities recommend, encourage, and support the inclusion in circles of well-maintained trees and vegetation for their benefits to traffic calming, making circles more visible at night, and contribution to beautification, neighborhood character, and all the other benefits urban greening provides, from carbon sequestration and urban cooling to access to nature and biodiversity. Traffic circle trees and low vegetation are also recommended in national guidance documents by the Federal Highway Association and the National Association of City Transportation Officials.

Establishing a practical, well-founded policy for trees and low vegetation in Berkeley's traffic circles, as proposed here, is consistent with other City policies and helps support some of their stated goals. For example, from the:

- **2019 Local Hazard Mitigation Plan (First Draft)**. Trees in traffic circles contribute to a dense tree canopy that helps mitigate projected extreme heat events, reduce the heat island effect, and address inequity.[1] *[See Map of Tree Coverage, below~~Add image of Tree Canopy Map~~]*

[1] Extreme heat events are a "newly-introduced hazard of concern for the 2019 LHMP." (ES-10) The report notes that by "2100, most of the Bay Area will average six heat waves per year, each an average of ten days". (ES-7) Projections indicate that "the number of extreme heat days… will increase exponentially: by 2099 the City of Berkeley is expected to average 18 days per year with temperatures over 88.3 degrees F." (ES-8). In the face of these threats the Plan recognizes the positive impact of trees, stating "a dense tree canopy can result in fewer heat related emergencies" (B-154) It also acknowledges a stark inequity in our tree cover: the densest tree canopy is in the hills of east Berkeley while "west and south Berkeley have the least [tree canopy]". (see Map below) Interestingly, west and south Berkeley contain the most traffic circles, and many of them include trees. Retaining and expanding tree cover in traffic circles can provide a valuable way to address both this inequity and future extreme heat events. ***Source**: City of Berkeley 2019 Local Hazard Mitigation Plan (First Draft)*

- **2009 City of Berkeley Climate Action Plan.** Increasing the number of traffic calming circles and planting them with trees will help fulfill the stated goals to maximize tree plantings, sequester carbon, and protect biodiversity.[2]
- **2017 Berkeley Bicycle Plan (Appendix F).** The design guide for a typical Traffic Calming Circle includes a tree in the center, which can help contribute to the stated goals of calming and safety. *[See Design Specifications illustration, below~~Add image of Design Guide~~]*[3]

Given the limited size of available curb cut-outs along most streets, the larger unpaved spaces available in neighborhood traffic circles represent valuable locations for the healthy, larger trees that provide greater climate adaptation and mitigation functions.

The proposed traffic circle vegetation policy is also consistent with Berkeley's history of neighborhood partnership for creating and caretaking circles, as is common in many other cities, and with the goal of increasing green space and tree canopy in neighborhoods with less access to parks and open space.

The proposed policy enables neighborhood traffic circles to contribute to the support of native biodiversity within the city, through the habitat contributed by native plants and trees. This policy provides several plant palettes of native plant assemblages designed to maximize biodiversity (Re-Oaking Palette, Native Wildflower Palette), as well as other valuable services such as pollinator support, water conservation, runoff reduction, and carbon sequestration.

Existing policies for maintenance of traffic circle vegetation, ascertained by this subcommittee, are generally consistent across municipalities throughout the United States and are the basis for recommended policy below.

This report comprises several sections. In addition to the proposed policy (Chapter 1), we review the history of traffic circles, traffic calming, and tree policy in Berkeley (Chapter 2), and we summarize policy precedents and provide examples from other cities (3). We also provide Suggested Planting Palettes for traffic circles, which offer a set of appropriate plants and trees on the themes of native oak communities,

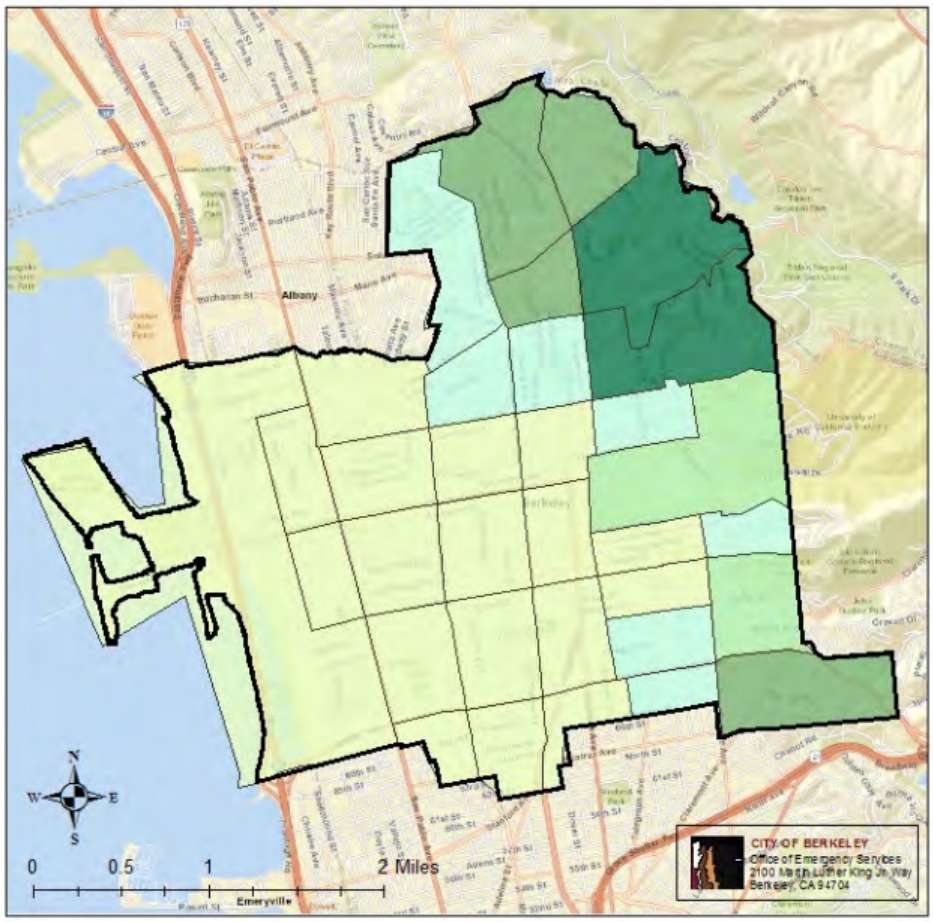
---

[2] "A single mature tree can absorb as much as 48 lbs of carbon dioxide per year. Estimates are that between 660 and 990 million tons of carbon is stored in urban forests nationally." (p. 31) Trees also improve quality of life through beautification.

[3] As long as they are maintained to preserve sightlines, circles are a valuable tool in traffic calming on Bicycle Boulevards. They are especially effective when placed on concurrent intersection locations, helping to lessen the open feel of the road which reduces vehicle speeds. The Design Specifications drawing of a sample traffic circles includes a "Broad canopy tree", the placement of which depends on location of underground utilities. ***Source**: 2017 City of Berkeley Bicycle Facility Design Toolbox (Appendix F)*

bees/pollinators, and native wildflowers, to enable residents to develop drought-tolerant circle landscaping that supports local biodiversity and resilience.j

Map 34. ***Percentage of tree coverage in City of Berkeley***



Source: Cal Adapt https://cal-adapt.org/
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

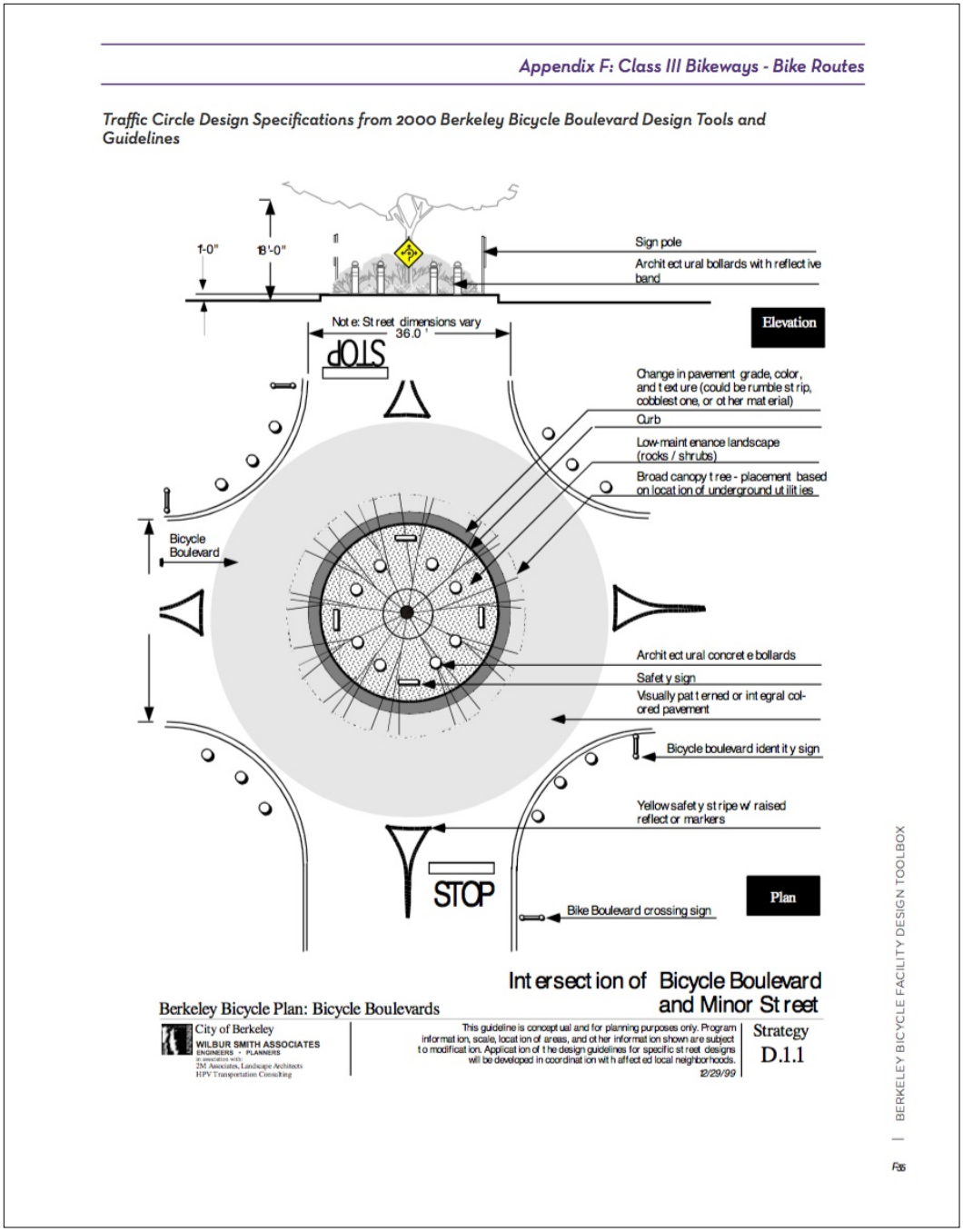
City of Berkeley

Tree Coverage

- 41% to 50%
- 31% to 40%
- 21% to 30%
- 11% to 20%
- Less than 10%

Map illustrating the distribution of tree coverage in Berkeley. The densest tree coverage is located in the hills in east Berkeley while the fewest trees are in the west and south, where a majority of the traffic circles are located. The LHMP recommends expanding tree coverage in Berkeley to help mitigate the UHIE (Urban Heat Island Effect) and the anticipated increase in extreme heat days, as well as to safeguard public health. Expanding tree coverage can also address historical inequities.

***Source**: City of Berkeley 2019 Local Hazard Mitigation Plan (First Draft, p. B-155)*



Berkeley's Design Specifications for Traffic Circles include a broad canopy tree in the center of the circle. The recommendation to include a tree is illustrated in 2 places: at the top, via the elevation drawing and in the middle, via the aerial view.

***Source**: 2017 City of Berkeley Bicycle Facility Design Toolbox (Appendix F)*

Policy

NOTE: The policy outlined below represents the perspective and thinking of the Vegetation Subcommittee. However, it is not fully aligned with the final policy in the Summary Report because it predates that document. Please see the final Summary Report for the policy approved by the full task force and recommended to City Council.

Definition

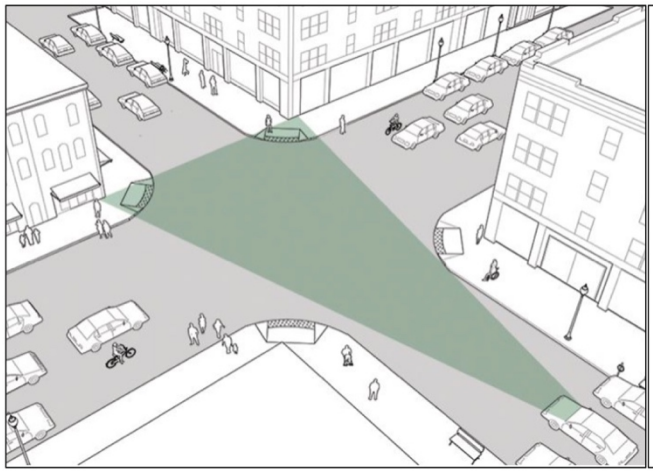
Traffic Calming Circles are those circles in residential neighborhoods, where the objective for installing the circle was to reduce, discourage and slow traffic. In Berkeley, these circles are generally 20 feet in diameter or smaller.

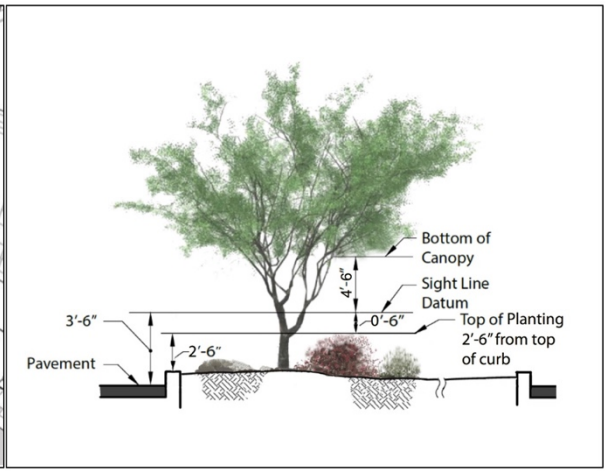
Proposed Policy

Traffic circle plantings and trees shall be designed and maintained to provide clear sight lines for drivers, as described below.

Sight Triangle Definition

1. Sight lines are defined as that horizontal plane (called the "sight triangle"), from the view of the driver stopped before entering the crosswalk to the corners of the opposite intersection, from 2.5 ft above the top of the traffic circle curb to the height of 7-8 feet.
    1. ~~Sight lines are defined as that horizontal plane (called the "sight triangle"), from the view of the driver stopped before entering the crosswalk to the corners of the opposite intersection, from 2.5 ft above the top of the traffic circle curb to the height of 8 feet.~~





Illustrations of sight triangle (left) and sight line heights (right)

Sources: *(left) Urban Street Design Guide Visibility/Sight Distance (NACTO 2013); (right; the original has been modified to reflect sight line recommendations for Berkeley) Sight Distance Triangles (Cochise County AZ)*

Traffic Calming Circle Vegetation Policy

~~a. All trees on existing circles at the time this policy is adopted shall be maintained even if the triangle contains multiple trees. However, the overall vegetation of the triangle shall not obstruct more than 25% of the sight triangle.~~

1. For traffic circles 20 feet in diameter or less, one tree is allowed, located in the central area of the circle, the trunk 6 feet or further from the outside perimeter of the circle.
2. Vegetation must be no taller than 2.5 ft (30 inches) above the traffic circle planter curb. Exceptions
    a. Flowers extending above the plant, such as hollyhocks and agapanthus, shall be permitted while in bud and bloom if less than 25% of the sight triangle is obstructed, considering total vegetation and signage within the sight triangle.
    b. All trees on existing circles at the time this policy is adopted shall be maintained even if the triangle contains multiple trees. However, the overall vegetation of the triangle shall not obstruct more than 25% of the sight triangle.

~~2.~~3. Trees more than 5 inches in diameter and 16 feet in height shall be maintained so that no foliage obstructs the sight triangle.

~~3.~~4. Trees smaller than 5 inches in diameter and less than 16 feet in height shall be permitted to maintain foliage within the sight triangle if less than 25% of the sight triangle is obstructed, considering total vegetation and signage within the sight triangle.

~~4.~~5. Tree limbs that extend beyond the curb line of the traffic circle, and are less than 14 feet above the curb line may be removed or pruned so that branches and canopies are 14 feet above the curb line in the area beyond the traffic circle where vehicles travel.

~~5.~~6. Tree pruning must adhere to American National Institute Safety Standards and International Institute of Arboriculture's Best Management Practices.

~~6.~~7. Traffic circle plantings and maintenance, as outlined in the best practices guidelines as periodically updated by the Parks and Waterfront Commission, are recommended.

~~7.~~8. Sight triangles shall be maintained so that no more than 25% of the sight triangle is obstructed from the vantage point of a driver stopped before a crosswalk bordering the traffic circle.

History of Traffic Circles

Overview

Islands or elevated protrusions in intersections have long been used for different purposes. They are popular in Europe, the United States and Canada.[4] Nomenclature is inconsistent. They are called roundabouts, traffic circles, rotaries, and mini-roundabouts and differ in purpose. The primary difference is circle size, intersection size,[5] traffic volume, and speed.

Some circles are used to facilitate traffic, particularly large circles in arterial intersections with high-volume traffic, so traffic can enter into an intersection at speeds between 25-45 mph, often without traffic signs or signals.[6] These circles range from 100 to 300 feet in diameter and have daily traffic ranging from 10,000 to 14,000 vehicles.[7] Berkeley has two of this type, Marin Circle and Channing Circle, both situated in heavily trafficked intersections.

Traffic Circles in Berkeley

The majority of Berkeley's traffic circles are small, generally 20 feet in diameter, in comparison to what traffic engineers term roundabouts. Berkeley's circles are traffic calming devices designed to discourage, limit and slow traffic on residential streets with light auto traffic. The majority of Berkeley's traffic circles originated to mitigate the impact on residential neighborhoods of commuter and development traffic diverting traffic from major arteries onto residential neighborhood streets.

History - Evolution of Traffic Calming and Traffic Circles in Berkeley

In Berkeley, the tradition of viewing streets as more than just traffic arteries goes back to the 19th Century. Berkeley's very first street design was done by famed landscape architect Frederick Law Olmsted for the private College of California in the 1860s. Olmsted wrote that streets in the neighborhood he was commissioned to design—the

---

[4] *Roundabouts Spreading Like Kudzu Across South Carolina* *https://www.postandcourier.com/news/roundabouts-spreading-like-kudzu-across-south-carolina-despite-some-opposition/article_06dc6030-3a4b-11e7-9dc8-93f0f4f8b236.html*

[5] Some call our traffic circles Mini-Roundabout. https://nacto.org/publication/urban-street-design-guide/intersections/minor-intersections/mini-roundabout/

[6] *Exploring Roundabouts,* Sheri Park, PhD., PTP, Kimberly Musey, James Press and John McFadden, PhD., P.E. PTP, June 2015, www.ite.org

[7] *Exploring Roundabouts*, supra.at p. 2

Berkeley Property Tract, along what is now Piedmont Avenue north of Dwight Way and east of College Avenue—should provide “good outgoings” embowered and calmed with overhanging trees. He divided the main street with landscaping and followed the natural topography, and included a large landscaped circle at the central intersection.

Thus, more than a century and a half ago, **in the 1860s**, **Berkeley installed its first traffic circle** Channing Circle.

Later, in the 1890s, as development began to proliferate along uniform grids of streets, a group of North Berkeley women formed the Hillside Club to advocate for urban planning. In the words of Berkeley historian Charles Wollenberg, “The club was dedicated to a new kind of urban development that would respect rather than destroy the natural environment. (They) fought any attempt to cut down the region’s trees. A club pamphlet said, ‘The few native trees that have survived centuries should be jealously preserved...Bend the road, divide the lots, place the houses to accommodate them!” (page 78/79, Berkeley: A City in History, Wallenberg).

Many of the pleasant winding streets and most picturesque neighborhoods of Berkeley are the result. Annie Maybeck, one of the founders of the Hillside Club, put the Club’s words into vigorous practice, successfully leading a protest that saved an old California Live Oak tree growing in the middle of Le Roy Avenue. The City agreed not to cut down the tree, leaving it on an informal island in the middle of the street. Decades later it was designated a City Landmark (when it eventually died, in 1985, the City planted a replacement oak in the same spot).

Early in the 20th century, East Bay civic leaders hired noted urban planner Werner Hegemann to advise on the development of Berkeley and Oakland, including streets. His 1915 report advocated for narrowing residential streets to 24 feet of pavement and landscaping them with “shapely and uniform avenue trees and planting the parkways between to shrubs or grass and flowers”. He also noted that residential property values were improved by “creation of small parks at street intersections and the use of shrubs or great masses of brilliant geraniums.” (page 104, Hegemann report)

Berkeley did not end up narrowing the pavement of its streets, but during the Great Depression chose to use much Federal money to plant a reported 16,000 ornamental street trees along residential blocks from 1935 to 1937. By 1944—seventy five years ago—Berkeley civic leader, businessman, and poet Lester Hink could rhapsodize about his town as a “city of hillside, homes and gardens gay. Sentineled by myriad traceried trees...”

After World War II as automobile use began to overcrowd the streets of Berkeley and communities all across the country, city traffic engineers began to concentrate on plans to speed vehicles, often at the expense of neighborhood livability.

This led to the 1950s/60s creation of one-way streets and dedicated turning lanes through some of Berkeley's residential and commercial neighborhoods. Some streets were widened and others converted into two- or three-lane, one-way, thoroughfares. The State of California similarly planned a grid of freeways. One was to connect Highway 13 as a freeway following--and replacing--Tunnel Road and Ashby Avenue all the way across south Berkeley to US I-80.

Transportation engineers then largely believed that the primary role of streets, was to move large amounts of traffic quickly and efficiently and they planned and advised cities accordingly.

In contrast, Berkeley, whose original design contemplated walkable neighborhoods, each with its own shopping district and elementary school, disputed the primacy of vehicles and responded with successful grassroots efforts.

In the 1960s, due to community protest, the Ashby freeway plans were shelved, and Berkeley also voted to become the only city that paid to entirely underground BART, helping to preserve surviving adjoining neighborhoods.

Traffic Barriers

In the 1970s widespread neighborhood activism led to a successful plan of traffic diverters and barriers[8] that channeled through traffic off Southside residential blocks onto a defined network of arterial streets.

To reduce traffic and speed in residential neighborhoods, Berkeley deployed traffic barriers, then speed bumps, and now traffic circles. Each tool promoted controversy.

Diverters

Diverters were temporary structures installed by the end of 1975, concentrated south of UC Berkeley. They were subjected to two rounds of voter initiatives to have them removed. Both initiatives failed and most are still in place, but the system was not expanded citywide.[9]

---

[8] *Traffic Calming In Berkeley, 1998* https://www.cityofberkeley.info/ContentDisplay.aspx?id=8238

[9] *Traffic Calming In Berkeley, 1998 supra.*

Speed Bumps

By 1996, the City has installed 156 speed bumps on 99 streets. By 1998, a moratorium had been placed on installing speed bumps due to criticism from the fire department for endangering back injury emergency transport patients, slowing response times and damaging fire truck transmissions.[10] As a result, Berkeley opted for the traffic circle as a calming device. The U.S. Department of Transportation's Federal Highway Administration has successfully promoted traffic calming circles for several decades, with their adoption in many US cities.[11]

Traffic Circles

By the turn of the century, the City documented excessive injury, vehicle speeds and volumes in Central Berkeley due to commute and commercial traffic cutting through Allston, Addison and Grant as alternatives to University Avenue and Martin Luther King. Neighbors proposed removing commercial and institutional traffic from the local residential streets when the City looked to expand the Public Safety Building into a residential area. When the City proposals for a half barrier plan failed to materialize, the City offered traffic circles as a first step for mitigation of existing excessive and speeding traffic dangers.

More than 20 traffic circles were first installed along California's bicycle boulevard, in central Berkeley and in Le Conte. Six traffic circles were installed on Addison and Allston between MLK and California to mitigate the documented danger and increased traffic from construction of the Public Safety Building on MLK and Addison. (community oral history) The City then had a list of trees and plants approved for plantings, paid for the initial plantings as part of its mitigation and neighbors contracted to plant and maintain the circles.

The City formally adopted a Traffic Calming Policy and Program in 2003, updated in 2009 for annual installations for traffic circles citywide with a $50,000 annual City

[10] *Traffic Calming In Berkeley, 1998 supra.*

[11] https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

installation construction budget[12],[13] The City allocated no funds for traffic circles planting or maintenance.

By 2008, Berkeley had removed most of the speed bumps and installed 50 traffic circles, all in residential areas, mainly bordered by major arterial streets. The City's goal was that traffic circles were to "slow down" traffic and encourage drivers to stay on major arterial roads by making the residential streets less efficient to traverse. The City built and installed the traffic circles, but their planting and maintenance was left to circle neighbors due to City budget restraints. (community oral history)

Today there are 60 traffic calming circles, 37 of which contain trees.[14] District 5 and 6 have only 1 traffic circle each. District 8 has 3 traffic circles. District 1 has 5 traffic circles. District 4 has 6. The largest numbers are in districts with major arteries, San Pablo, Sacramento, Shattuck, Telegraph, University, and Martin Luther King. District 2 has 13 and 6 more along the border with District 3. District 3 has 15, not including the 6 along the border with District 2, and 5 along its border with district 7. So District 3 is impacted by enough traffic to warrant 26 traffic calming circles, almost half the total number in the entire city. District 7 has the 5 traffic circles along its border with District 3. The two districts most impacted by traffic and who have the largest number of traffic circles are District 2 and District 3, south and west Berkeley. In the City, South Berkeley has the lowest ratio of open space to population, and Districts 4, 2 and 3, in 94703 and 94702, are two of the densest zip codes.[15]

Traffic circles, the latest effort to maintain livability with ever-increasing traffic volumes, have been partly successful. Many areas remain unsafely burdened by excessive injury, vehicle volumes and speeds. The City has for many decades recognized the value of trees - as nature and as environmental screens. Now with many densely walked areas, it is critical that they not be increasingly polluted and dangerous.

---

[12] See records of City Transportation Commission and Transportation Division files.

[13] These circles and others in Berkeley were typically planted and landscaped by neighbors with the City's blessing. Karl Rhee, who led the Le Conte effort, recalls:
"In 1998 the LeConte Neighborhood Assn. received complaints that traffic on Ellsworth Street was frequently speeding[,]... realized that it was wider than our other residential streets and had no parking strips nor street trees. … …The City Forestry Dept. donated and planted the two Dawn Redwood trees at Stuart & Parker.[I inserted as footnote, seems to be a little repetitive to have in the body]
Three circles were installed on Ellsworth, then several years later 5 additional circles were installed on Fulton. By this time plans were already in place to put traffic circles though out Berkeley and the City began offering grants to pay for plantings (including trees)". (Karl Rhee, email to Mayor Arreguin, Dec. 6 2918).

[14] Map is in the appendix

[15] http://www.zipatlas.com/us/ca/berkeley/zip-code-comparison/population-density.htm

History - Berkeley Community Relations to Trees

The City of Berkeley in the last half century has experienced numerous community issues due to threats and damage to trees. Some examples: after a church removed a large, heritage oak on Virginia Street, the City passed the Oak Moratorium Ordinance (BMC 6.52.010), requiring permits for removing any live oak more than 18" in circumference at 4" from the ground. When the Central Library Plaza was redesigned and the lone tree was cut down, a protester chained herself to the stump overnight in protest .(community oral history) Dozens of trees were added to Shattuck Ave islands to settle the dispute.

In 2000, a "redesign" by landscape architects who had designed Palo Alto's downtown, proposed that all existing trees from Dwight to University be removed and replanted for uniformity. Public outrage resulted in the redesign being rescinded. (community oral history)

The most famous tree sit-in protest and the longest on record--December 2006 through September 2008--protested the University of California's felling of a grove of 75-year-old oaks in rebuilding its football stadium.[16] Despite the neighborhood-negotiated use permit condition that Redwood trees were to be preserved in the "TuneUp Masters" University Avenue housing redevelopment, trees were not preserved, damaged in construction, forcing removal - yet the project continues. In central Berkeley, some 17 fully mature trees (the majority redwood) have been removed despite use permit conditions which the City often fails to enforce or create. Recently, the community raised concern over damage to redwoods during construction of the West Branch Public Library and housing construction on University Avenue.[17]

Tree Preservation

Tree preservation ordinances exist across the United States, acknowledging the value and contribution of trees, particularly in urban environments, and the need to encourage and protect them.[18] Here are a few Bay Area examples: The City of Pleasanton has thirty-year-old heritage tree ordinance, certified arborists on staff, and a mandate that all tree pruning comply with International Society of Arboriculture standards. The stated goal of El Cerrito's tree committee is to ensure a "healthy growing forest" (Resolution 2007-96). The City of Oakland requires city review and permits for removing all private

[16] https://en.wikipedia.org/wiki/University_of_California,_Berkeley_oak_grove_controversy
[17] https://www.berkeleyside.com/2018/08/28/berkeley-disciplines-developer-after-redwood-trees-chopped-down
[18] https://www.charlestontreeexperts.com/tree-removal-guidelines/

and public trees, and encourages citizens to nominate trees for Oakland "Big Tree Registry". UC Berkeley even maintains a slide show of heritage trees on campus, stating "there's no place on campus that is not soothed and improved by trees."[19] The university also offers periodic campus tours, often over-subscribed, of its prize trees.

We live in a manmade epoch of already devastating climate change as evidenced by unprecedented heatwaves, powerful storms, and destructive fires. Scientific research unequivocally shows that human activity is altering natural earth systems, to the detriment of all living organisms. In November, 2018, the United Nation Intergovernmental Panel on Climate Change (IPCC) recommended planting 1 billion hectares of forests as one important way to combat global warming. In the July 2019 edition of *Science*, Swiss scientists determined that such extensive tree planting is feasible and could remove 200 gigatonne of carbon from the air.[20]

Driver Patterns

In interviews with community members, testimony during public comment at subcommittee meetings, and from direct observation at traffic circles, the subcommittee observed that drivers generally negotiate traffic circles following a pattern. Drivers usually approach and enter the traffic circle cautiously. However, once the driver enters the traffic circle and negotiates half of the right turn, the driver speeds up to exit the circle, usually just before reaching the crosswalk 180 degrees across from where the driver entered the circle.

Speed & Sight Triangles

The National Association of City Traffic Officials (nacto.org) recommends that instead of removing a tree in a sight triangle, traffic speeds be reduced and other traffic calming devices considered.[21] For this reason, the vegetation subcommittee recommends that speeds in traffic circles be reduced to 15 miles per hour.

---

[19] https://www.berkeley.edu/news/multimedia/2004/01/trees.html

[20] https://science.sciencemag.org/content/365/6448/76

[21] "Fixed objects, such as trees, buildings, signs, and street furniture, deemed to inhibit the visibility of a given intersection and create safety concerns, should not be removed without the prior consideration of alternative safety- mitigation measures, including a reduction in traffic speeds, an increase in visibility through curb extensions or geometric design, or the addition of supplementary warning signs." **Source**: Urban Street Design Guide. Visibility/Sight Distance (NACTO 2013)

Precedents

The Vegetation Subcommittee examined the policies and characteristics of traffic circles in cities around the US and Canada. We reviewed the various standards for traffic circle vegetation in national guidance documents in the published policies of other cities, and through interviews with traffic safety experts.

In addition, to capture an "on-the-ground" perspective we used the street-view feature in Google Maps to view neighborhood traffic circles in several cities, to gain an understanding of plantings and general layout. See the Section: "Photo Album of Traffic Circles…" (below) for a subset of photos captured. We found that landscaped plantings with trees are usual and customary practice for neighborhood traffic circles in numerous cities across the United States and are also recommended in the major national guidelines for traffic safety and urban design.

Trees are in fact recommended for their benefits to traffic calming, by making circles more visible at night, cueing drivers to slow at a greater distance.[22] Well-maintained trees and low plantings are also valued by many cities for their diverse community benefits, including beautification, neighborhood character, ecosystem services such as carbon storage and cooling, and local biodiversity. These city and national documents routinely feature pictures of neighborhood traffic circles with landscaping and a central tree.

Specifications for the height and clearance of vegetation are fairly standard, generally recommending low landscaping maintained at 2 to 3 feet height (in one case 5 feet), and trees with mature branches maintained at a minimum of 8-14 feet above the ground. Responsibility for maintenance varies between the neighboring communities and city departments. Several examples follow.

Policy Statements from Specific Cities Supporting Trees in Circles

- **Palo Alto**

The City of Palo Alto's Comprehensive Plan recognizes the value of traffic circles for reducing collisions and "**offer[ing] opportunities for added landscaping and tree**

[22] **Roundabouts: An Informational Guide** *(NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM/Transportation Research Board 2010, Research sponsored by the American Association of State Highway and Transportation Officials in cooperation with the Federal Highway Administration)*

planting." The 2012 Transportation Plan "**calls for greater use of traffic circles**, particularly along bicycle boulevards."

Source: *Palo Alto Comprehensive Plan* *Transportation Element* (Palo Alto City Council 2017)

- **San Francisco**

The City of San Francisco recommends that "[T]raffic calming circles **should be landscaped with trees or plantings**. **Shrubs and grasses should be planted up to 3 feet tall and trees should be appropriately pruned**." In fact, the City specifies a recommended number of trees in relation to circle size: "In traffic calming circles with a diameter of less than 15 feet, **one tree should be planted in the center**. On a traffic calming circle with a diameter greater than 15 feet, **more than 1 tree** should be planted and should be equally spaced around the circle."

San Francisco's *Green Connections Design Guide* recognizes the value of landscaped traffic circles, noting that "Traffic circles visually reduce the scale of wide intersections and break up the monotony of the street grid. **When they include landscaping, they can beautify and enliven the streetscape."** In fact, the City's SF Better Streets website features a picture of a neighborhood circle landscaped with native pollinator plants and a central tree, similar to some of Berkeley's circles.

Sources: *SFBetterStreets: A guide to making street improvements in San Francisco* (City and County of San Francisco 2015); *SF Green Connections Plan* (City and County of San Francisco 2014)

- **Seattle**

The City of Seattle is a recognized leader in making streets safer for bicycles and pedestrians. As part of this effort the city supports and celebrates their community-planted traffic circles. In fact, Seattle's DOT maintains a Traffic Circle Flickr page

featuring attractive or charismatic circles with trees. Contacted for information, Seattle shared a photo of a circle with a mature tree, as shown below.

Seattle policy allows trees in traffic circles with an inner diameter of at least 8 feet, with city approval: " **All Traffic Circle trees must be approved by SDOT Urban Forestry prior to planting."** The city relies on maintenance by the community but reserves the right to maintain if this is not successful.

Seattle Traffic Circle with mature tree

- **Missoula**

The City of Missoula incorporates trees and substantial landscaping into their traffic circles. Referring to traffic circles, medians, and chicanes, the Missoula Parks and Recreation Design Manual (2018) states that "Landscaping in these areas consist of trees, woody and herbaceous shrubs, grasses, woody and herbaceous perennial-type ground covers, drought tolerant grass." (19)

Missoula also encourages growing traffic circle plants to 5 feet in height to assist with traffic calming: **"...Where median and traffic circle plants are used for specifically for traffic calming, the selected plants may grow to a height of 60" above the top of the curb."** (23)

The City also prioritizes the benefits of landscaping to neighborhood health and local biodiversity. It is the first certified "Community Wildlife Habitat™" City in Montana, **based on its endeavor to provide habitat for animals, especially birds and insects.** The Design Manual states: "When designing public landscape, greenway and park

facilities, the landscape architect must consider costs of construction and maintenance in relation to the **benefit derived by the community.** Proper design and effective use of the built environment can lead to **a happy and healthy community, as well as plant and animal diversity within the community."** (14)

Source: *Missoula Parks and Recreation Design Manual 2018 Edition* (Prepared by City of Missoula Parks and Recreation 2018)

Note newly planted tree in photo of Missoula Traffic Circle, in National Wildlife Foundation's announcement that Missoula became the first city in Montana to become a Certified Habitat City, with the caption: "Many Traffic Circles in Missoula provided excellent habitat!" Photo by Claire Grisham."

Source: "*Montana's Garden for Wildlife City*" (National Wildlife Federation Blog, August 29, 2019)

- **Tucson**

The City of Tucson has developed a guidance document to assist neighborhoods in obtaining traffic circles because they "have been shown to be very effective in reducing

the speed of vehicles traveling on residential streets . . . and for beautification" of residential streets. This document was produced by the Department of Transportation Traffic Engineering Division. The City encourages trees and provides specific, practical guidance for visibility:

> "Sight visibility around the traffic circle **must not be blocked with large dense shrubs**. Shrubs should be set back accordingly so that mature growth will not extend past the curb edge. **Tree selection and setback should be such that the mature tree branches do not extend into the travel lane below the 14' level around the traffic circle**."

Source: *Traffic Circles: Facts About Controlling Traffic in our Neighborhoods* (City of Tucson Traffic Engineering Division nd)

National Guidance Documents:

- ***Urban Street Design Guide*** **(NACTO 2013)**

This widely-cited manual was developed by the National Association of City Transportation Officials (NACTO), an association of 71 major North American cities and 10 transit agencies, whose mission is "to build cities as places for people, with safe, sustainable, accessible and equitable transportation choices that support a strong economy and vibrant quality of life." The Guide notes the value of trees and other vegetation not only for beautification but for their contribution to traffic calming: "Mini roundabouts and neighborhood traffic circles[1] lower speeds at minor intersection crossings…**Shrubs or trees in the roundabout further the traffic calming effect and beautify the street,** but need to be properly maintained so they do not hinder visibility."

The guidance diagram for the "mini roundabouts" section highlights a traffic circle with landscaping and a central tree (see below).

Note tree in center of mini-roundabout
Source: *Urban Street Design Guide* (**NACTO 2013)**

- ***Traffic Calming ePrimer*** **(USDOT Federal Highway Association 2017)**

The U.S. Department of Transportation/Federal Highway Administration's Office of Safety Programs provides an extensive Toolbox of Individual Traffic Calming Measures, including neighborhood traffic circles. In the section on traffic circles, they emphasize that these features are more effective as traffic calming devices when landscaped, including the use of trees:

> "A traffic circle can simply be a painted area, but it is **most effective when it is defined by a raised curb and landscaped** to further reduce the open feel of a street. **A traffic circle can be landscaped with ground cover, flowers, and street trees**."

The illustrative photo of a landscaped traffic circle provided in this FHA Traffic Calming guide includes a central tree (see below).

Source: *Traffic Calming ePrimer - Module 3* (U.S. Department of Transportation/Federal Highway Administration)

Phone Interviews with Cities with Traffic Circles:

We also interviewed traffic engineers, landscape architects, and traffic circle administrators from a number of cities to understand their perspectives on landscaping of traffic circles. These cities include Augusta (Maine), Austin (Texas), Boulder (Colorado), Chapel Hill (North Carolina), Columbus (Ohio), Minneapolis (Minnesota), Missoula (Montana), Pasadena (California), Portland (Oregon), San Francisco (California), Savannah (Georgia), Seattle (Washington), Tucson (Arizona), Vancouver (British Columbia), Williamsport (Pennsylvania), Washington D.C., and Winooski (Vermont).

We found that the vast majority of the cities contacted not only allow but encourage trees and vegetation to be planted in traffic circles, provided the plantings conform to city policy regarding stipulated sightlines and planting policy. Policies vary, but the great majority require:

- vegetation to be no taller than 2-3 feet,
- tree limbs to be no lower than 8 feet,
- boughs and canopy extending over the street to be no lower than 14 feet above pavement

Table of Findings on Traffic Circles in Other Cities

The table below summarizes key pieces of information related to traffic circle vegetation policy from our research. This information was found online (e.g. city websites) or

captured during phone interviews, including any material shared afterwards. For each city, it tracks the maximum allowed height of vegetation and pruning specifications for trees ("limbing up"). If trees are allowed but pruning specifications weren't captured, the cell is noted with "Allowed". If no details were captured the cell is marked with a hyphen, "–".

#	City	Plant Ht	Trees*	Notes
1	Missoula MT	60in[W]	Allowed[W]	Robust Adopt-a-Circle program that promotes adoption and maintenance of circles, including a clickable Google Map. In July 2018~~Striving to~~ became the 1st city in MT to become a National Wildlife Federation certified "Community Wildlife Habitat™".
2	Tucson AZ	36in[P]	14ft[O] (if extends beyond edge of circle)	200+ circles. Neighbors decide signage (STOP or YIELD). Biggest issue is watering, not sightlines.
3	San Francisco CA	36in[O]	Allowed[O]	Robust SF Better Streets Program. Multiple trees allowed: <15' dia. 1 tree >15' dia. 2+ trees
4	Boulder CO	30in[W]	8ft[W]	Sight line specs from Municipal Code 9-9-7 for Sight Triangles
5	Pasadena CA	30in[E] (from street)	7ft[E]	No yield control, Stop signs at each corner.
6	Seattle WA	24in[W]	Allowed[P]	First circles in 1970s, now 1,200+. Approx 5 new per year. Possible funding from "Your Voice, Your Choice" budgeting initiative.
7	Austin TX	24in[W,P]	14ft[P] (if extends beyond edge of circle)	Focus on native vegetation
8	Vancouver Canada	24in[O, E]	--	Robust Green Streets Program that promotes adoption and maintenance of circles, includes a list of recommended plants.
9	Columbus OH	--	Allowed[P]	1998 Planting Guidelines - more than half of all recommended are trees
10	Portland OR	--	--	"Trees placed in Traffic Circles break uninterrupted views of long straight street sections and help to focus driver attention on their local surroundings."[W] Only deciduous trees allowed (for limbing up), no evergreens.
11	Arlington VA	--	14ft[O] (if extends beyond edge of circle)	For Neighborhood Traffic Circles the desirable maximum entry design speed is 15mph. Traffic circles may be planted with appropriate landscape and central islands greater than 12ft in diameter may be planted with a tree.

Key of superscripts:

— = No information collected

** = Sightline clearances (or "limbing up") not captured for all locations. If no specs captured, noted as "Allowed". If sightline clearance was captured, the allowance is by default for inside curbline, exceptions noted as "if extend beyond edge of circle"*
P = Information from phone interview
O = Information found online, usually city's webpage
E = Information from an email
W = Information from written document

Sources:
(Missoula) Adopt-a-Circle webpage, Parks & Rec Design Manual, Google Map of Circles; (Tucson) TDOT Traffic Circles Webpage, Traffic Circles Fact Sheet Brochure; (SF) San Francisco Better Streets Program; (Boulder) Boulder Municipal Code 9-9-7; (Seattle) SDOT Traffic Circles; (Vancouver) Green Streets Program, Recommended plant list; (Arlington) Roundabouts/Traffic Circles Guidelines

Photo Album of Traffic Circles in Selected U.S. Cities

The Subcommittee on Plantings and Vegetation opted to gain a contemporary on-the-ground perspective of traffic circles by sampling cities throughout the United States and Canada. We knew from our initial research that many cities promote circles as effective traffic calming devices and that trees are not only allowed but encouraged. The next logical step was to get a street-level view, to compare and contrast the circles in other cities with those in Berkeley.

The images below represent a sampling of images. Some were captured in the winter months when deciduous trees are without foliage. In others, the trees are small and still becoming established, apparently planted recently as part of traffic calming efforts. Better than words can convey, they offer a clear, visual understanding of how other cities approach this valuable traffic calming device.

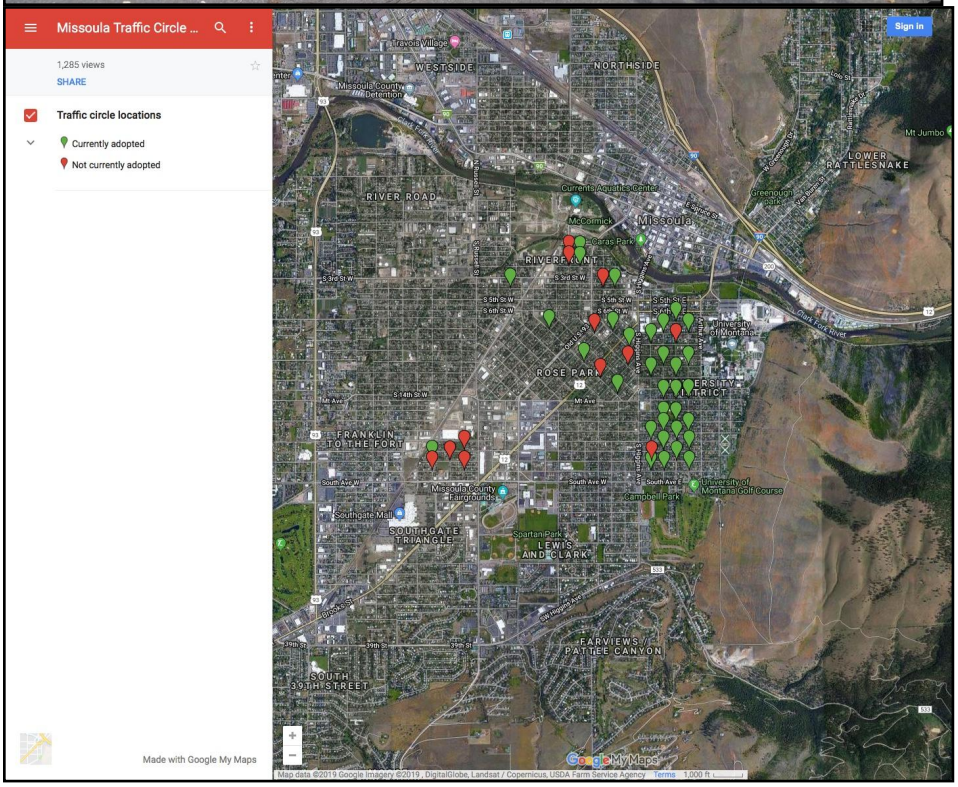
Seattle WA

Boulder CO

Vancouver BC

Tucson AZ

Missoula MT



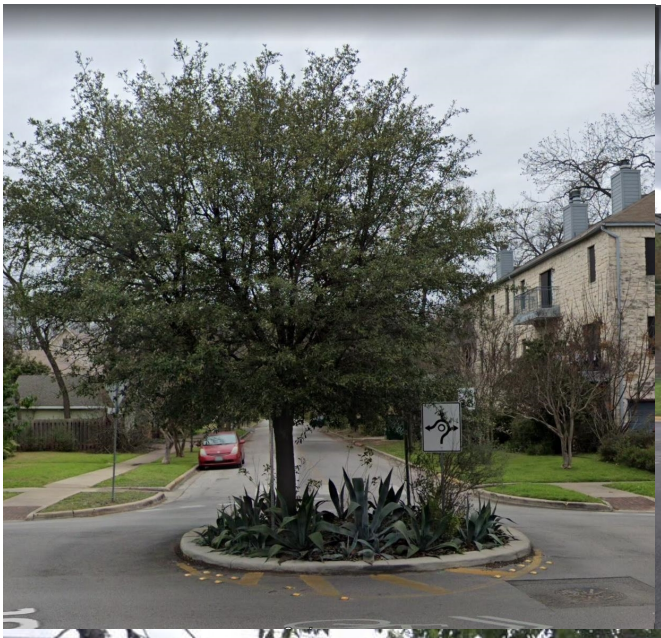
Map of Missoula's Adopt-a-Circle program. Illustrating adopted circles and those which are available to be adopted.

Source: [Missoula's Traffic Circle Locations]

Arlington VA

Columbus OH

Austin TX



Portland OR

Appendix

~~NOTE: Final order of Appendices to be determined~~

A. NACTO Recommendations on Sight Triangles and Speed

The following illustrations are taken from the NACTO (National Association of City Transportation Officials) guide for design streets and emphasize the importance of lowering speeds to promote safety. The task force concurs, especially in residential areas with heavy bicycle and pedestrian traffic. ~~Speed kills.~~ Reducing speed saves lives. For example, lowering the speed of a vehicle just 5-10 mph can reduce the crash risk by up to 10%, while simultaneously decreasing the risk of fatality by 3%. From the table below, reducing speed from 25 mph to 15 mph reduces the Crash Risk from 15% to 5% and Fatality Risk from 5% to 2%.

SPEED (MPH)	STOPPING DISTANCE (FT)*	CRASH RISK (%)†	FATALITY RISK (%)†
10–15	25	5	2
20–25	40	15	5
30–35	75	55	45
40+	118	90	85

* Stopping Distance includes perception, reaction, and braking times.

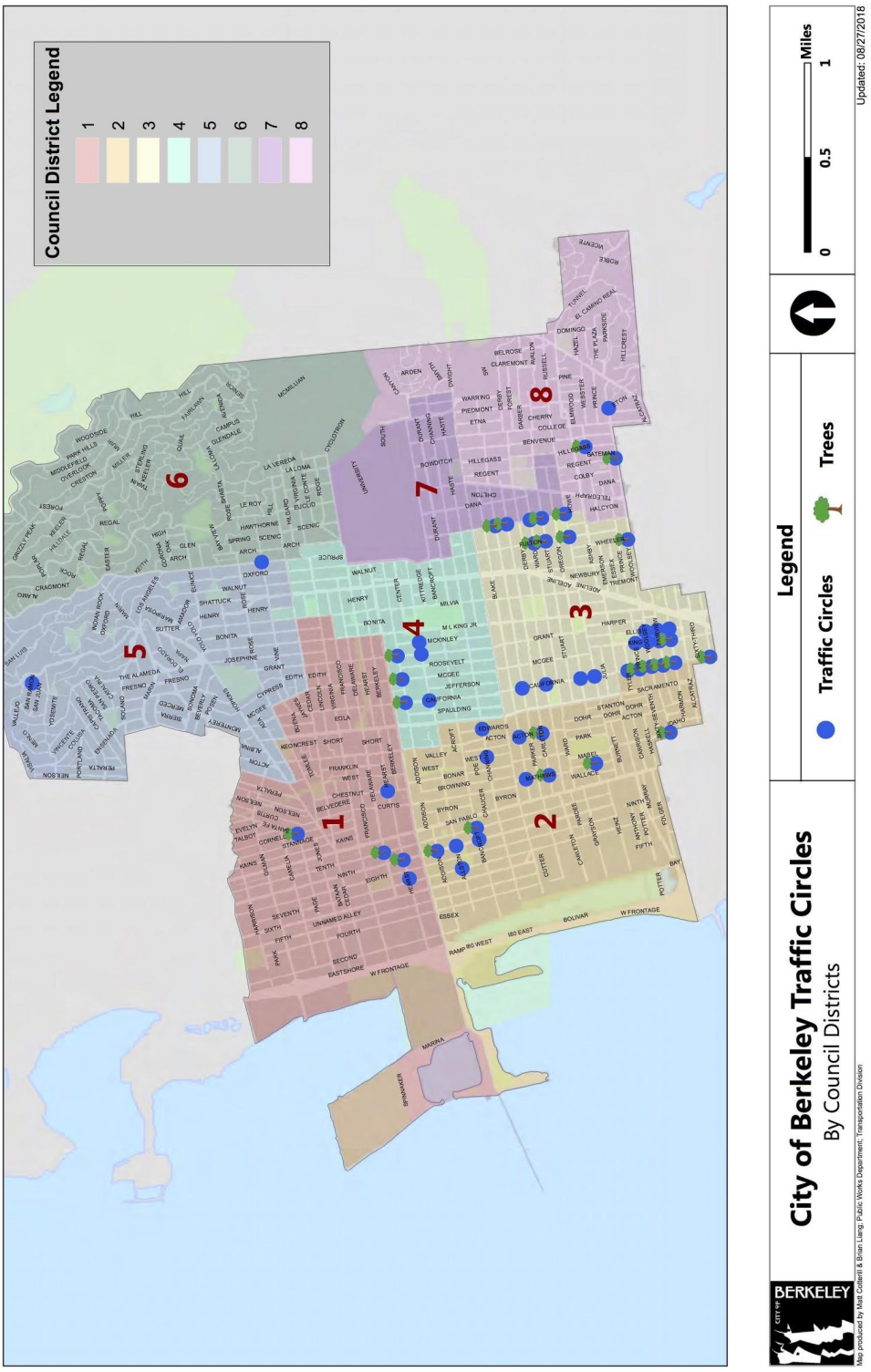
† Source: Traditional Neighborhood Development: Street Design Guidelines (1999), ITE Transportation Planning Council Committee 5P-8.

Driving Speed Fatality Risk Chart.
Source: *Urban Street Design Guide*. Design Speed. **(NACTO 2013)**

Slower speeds also enhance a driver's field of vision, which is paramount for promoting safety. See illustration, below, comparing the peripheral view corridor of a vehicle traveling at 10-15 mph (top image) vs. 20-25 mph (2nd image from the top). At slower speeds the field of vision is broader.

Driver's peripheral vision at different speeds.
Source: Urban Street Design Guide. Design Speed. **(NACTO 2013)**

B. Map of Traffic Circles in Berkeley



C. General Vegetation Guidelines

Planted traffic circles accord with Berkeley's environmental and sustainability values and, when regularly maintained, add to urban beauty and neighborhood quality of life. Circles should have a minimum of hardscape and a maximum of low growing plantings.

The following principles are suggested for guiding the planting of traffic circles.

1. The City should encourage circle plantings that are durable, diverse, and attractive. Planted circles also reduce hardscape and runoff and improve ground water retention. Plantings are strongly encouraged that provide habitat for native bees and other pollinators, butterflies and other insects, and birds, and that do not require pesticides or herbicides to maintain. Use of native plant species is encouraged.

2. Circle plantings can and should reflect the individuality and diversity of Berkeley in the same way that our buildings, people, cultures, public spaces, neighborhoods and activities are diverse. There is no need for all circles to look, or be planted, the same, although within specific neighborhoods or along individual streets circle designs might be coordinated.

3. We do not recommend a species list of approved plants. Developing and maintaining a species list will be costly, controversial, and difficult and expensive to administer. Instead, the City should permit a broad range of plantings that conform to general criteria. To aid residents who seek additional guidance, several planting lists (or "palettes") are provided.

4. One criteria is height. Non-tree plantings should not be allowed to grow taller than 2 1/2 feet (30") in height above the circle curb, in accord with national and regional standards. An exception should be made for seasonal flower stalks that may extend above this height.

5. The City may maintain a limited list of plants that are not recommended for circles because of very specific detrimental impacts, for example, poison ivy.

6. Trees in circles are welcome as a way to reduce the heat island effect, provide habitat and shade, and sequester carbon. Species selection should be coordinated with the City Forester.

7. Mature trees should have no substantial foliage below about eight feet above the pavement. Sapling trees will clearly have some foliage between two and eight feet, but species should not be used that grow extremely wide when low and young. When Circle

tree plantings are young they may also be selectively pruned to encourage growth to a taller height.

C-1. Tree Guidelines

Tree plantings in Berkeley's parks, along Berkeley's streets, and in traffic circles have clear and substantial benefits and value. Trees sequester carbon which helps fight climate change, remove carbon dioxide and other greenhouse gases from the air, reduce urban heat, help create and retain soil, reduce stormwater runoff and promote groundwater recharge, and create habitat for birds, animals, and insects. They also provide beauty, shade, a stately presence in the public landscape and a marker of the changing seasons, particularly in highly urbanized areas where mature trees are rare in private gardens and/or on public streets.

Other Bay Area and North American cities and expert analysis beyond Berkeley have identified trees as a welcome and useful component of traffic circles, particularly because they help slow traffic and identify for drivers the presence of a circle from a distance.

Half an acre of forest land can absorb three tons of carbon dioxide annually and produce two tons of oxygen. Berkeley's numerous existing current traffic circles cover about half an acre of land, all of it converted from asphalt. The City's Hazard Mitigation Plan and Climate Action Plan recommend more tree plantings in Berkeley to help fight climate change and reduce the "heat island effect" in lower elevation neighborhoods. Tree plantings are also an economic and social equity issue. City mapping has determined that tree cover is much higher in the Berkeley Hills than it is in the Flatlands.

Berkeley has a variety of existing trees in its traffic circles. Most have attained a size where they do not have any substantial small branching or leaf canopy below eight feet, and others are growing rapidly towards that expectation. These include California Live Oaks, Dawn Redwoods, California Buckeyes, palms of various species, strawberry trees, and even large woody shrubs that have been pruned up into a tree like canopy. These trees should be "grandfathered" into the City's policies after review of individual specimens to ensure they currently conform, or will conform as they continue to grow.

Pruning of circle trees should be done in consultation with circle coordinators and the City Forester. The pruning emphasis should not be on radical "limbing" or entirely removing everything below eight feet, especially for tree saplings, because this may retard rapid growth to appropriate height or permanently deform or weaken the tree. Instead, smaller trees can be thoughtfully pruned to improve sight lines and maintain healthy condition and growth. Pruning should be done at times of year best suited to

individual species. Trees should generally be planted at, or slightly offset from, the center of the circle so the perimeter areas do not have trunks or low tree branches.

The City Forester should be consulted and review the selection of tree species for individual circle planting, but we do not recommend a specific proscriptive list of tree species for circles or a requirement that circle trees be the same as nearby, or citywide, street tree plantings. Diversity should be encouraged. In some areas circle trees can be species that match existing nearby street trees, but special tree species in circles also have their own value. For example, palms in circles along Ninth Street and Dawn Redwoods in circles along Ellsworth are a distinctive presence.

Individual neighborhoods and circle coordinators should be trusted, with appropriate review by the City Forester, to suggest species that will work in specific circles. A goal of circle trees that are among the most attractive, unusual, and distinctive in a neighborhood is consistent with these policies.

Specific guidelines for species selection:

1. Trees that *require* frequent or major irrigation once established are not encouraged for circles.
2. It should be expected that circle trees will receive, and should be able to thrive and remain attractive in, conditions of full or close-to-full sun and reflected heat from surrounding pavement.
3. The existence of utility access shafts and underground utilities should be a factor in the selection of tree species for individual circles.
4. Trees that have long lifespans may be preferable since they will remain mature for a longer time without deterioration or low elevation growth. Short lived species will increase the frequency of replacement plantings and also increase the time that younger, and thus lower, trees are in a circle.
5. Multi-trunked species should not necessarily be discouraged. Visibility can be maintained between trunks as the tree grows older and trunks overall will have a narrower diameter.

If any single variety or species is preferred, it should be native oaks. Oaks meet many of the goals described in this section and, as described elsewhere, a “re-oaking” effort in Berkeley could be partially based in newly planted traffic circles. Oaks could be a preferred species for “orphan” circles and newly installed circles where the City is undertaking all the installation and maintenance work.

New tree plantings in circles may be from 15 gallon 24 inch box or larger specimens so the new planting already has substantial height and a clear lower trunk when it is placed

in a circle. However, smaller specimens may be selectively used / planted where the tree is expected to grow rapidly to greater height and clear sight lines. Research has shown that many tree species grow more rapidly when planted young. For example, the California Live Oak at Fulton and Russell was planted as a seedling less than three feet high and quickly attained adult maturity and size.

Circle tees may be planted as memorials to, or honoring, individual citizens, organizations, or causes, after appropriate city review. Special trees of this sort can reinforce neighbor and community ties and identity and increase neighbor maintenance attention to the circles. The City should develop guidelines and a process for approval of such memorial trees, and should have a process for reviewing and accepting community donations of tree specimens for circle plantings.

Small memorial plaques may be placed in circles in conjunction with memorial or other special plantings, but should be low and unobtrusive. An alternative, where space permits, would be a freestanding plaque on nearby sidewalks that can be read by passersby viewing the circle across the intersection.

D. Introduction to Suggested Planting Palettes

Whether or not you plant a circle to a specific palette, all appreciate the benefits of any type of planted circle.

About one quarter of Berkeley's land area is covered with asphalt or concrete pavement in the form of streets and parking lots. The typical Berkeley traffic circle provides 200-300 square feet of welcome growing ground, recovered from otherwise sterile asphalt pavement. When a new circle is created, it is quickly colonized by insects, plants, and soil organisms even without human help. Within a season or two birds can forage in circles for seeds and edible insects and find them a welcome place to take temporary refuge.

Traffic circles also absorb and filter rainwater, decreasing stormwater runoff and urban pollution. Circles with a mature central tree provide additional bird habitat and shade, sequester large amounts of carbon, remove greenhouse gases from the atmosphere, and combat the "heat island effect" prevalent in densely developed urban areas. Fruits and flowers produced by plants in circles provide food for birds and insects, including beneficial bees.

For generations Berkeley has prided itself on being a garden city, with plants and nature integrated into every area; planted circles reinforce that history. Traffic circles also function as miniature public open spaces in neighborhoods without large parks or other

plantings. Although they should be viewed, not actively used for recreation, their very existence helps reduce human stress and brightens and softens the streetscape.

Appropriate seasonal, secular, decorations in circles that are planned and positioned to not obstruct sight lines can cheer the passersby, especially during the winter.

The palette lists below are drought-tolerant plant assemblages that support native biodiversity and the benefits to human health and well-being that local access to nature provides. The palettes are based on local ecosystems, to bring the experience of nature into our neighborhoods and re-establish some of the lost habitats of Berkeley. They are also designed to be low-maintenance, climate-resilient and to conform with visibility and safety considerations.

D-1. Re-Oaking Guidelines

The re-oaking template is based on the native oak savannas and woodlands that were common throughout much of the Bay Area before modern development. California's oaks are keystone species that support tremendous local biodiversity through their leaves, branches, and acorns. In addition to their ecological benefits, coast live oaks and valley oaks also provide valuable ecosystem services to address climate change, providing large shade canopies while being drought-resilient and sequestering carbon at higher rates than most other trees. Matching oak canopy with complementary drought-tolerant understory vegetation creates an experience of local nature in the city that enhances the biodiversity benefits for local wildlife.

Biodiversity Benefits: Native oaks such as coast live oak and valley oak support a diverse range of native birds and insects. Planting neighborhood oaks within 500' of each other increases the likelihood of pollination and acorn production. The understory supports an extremely diverse range of native pollinators and other insects such as butterflies, beetles, bees, crickets and moths. For example, Great Spangled Fritillary Butterflies and wooly bear caterpillars use oak leaf litter for protection from cold weather and predators. The setting provides an opportunity for low-growing plants that were common to the area but now rarely find space given the priority for lawns and taller vegetation. A combination of different types of native oaks within neighborhoods (coast live, valley, blue, black) will support greater biodiversity and resilience to climatic variation.

Carbon Sequestration: Coast live oak and valley oak store more carbon per year than commonly used street trees.

Maintenance: As the oaks mature, their canopy provides shade and natural mulch, reducing the need for watering and weeding. The leaf drop – particularly from live oaks—can greatly reduce weeding needs.

Center tree

Coast live oak (*Quercus agrifolia*). Live oaks are hardy distinctive California trees with a striking dark green color and year-round canopy.

Valley oak (*Quercus lobata*). Valley oaks are a beautiful, graceful deciduous shade tree. Valley oaks are sensitive to salt in the air and tend to be found further away from the Bay. In Berkeley, healthy valley oaks appear to be more common east of Martin Luther King Way.

References: *Re-Oaking Silicon Valley: Building Vibrant Cities with Nature* (San Francisco Estuary Institute 2017). https://www.sfei.org/documents/re-oaking-silicon-valley

Oaks of California (Pavlik et al. 1993)

Suggested Plants for Oak Understory

Plant	Scientific Name	Height	Notes
Apricot Monkeyflower Bush	Mimulus bifidus	2-3 ft ht x 2-3 ft wide, might need some pruning to keep lower	Spectacular 2" azalea like flowers. No irrigation once established. Attracts hummingbirds. Host plant for Checkerspot butterflies.
Bush Monkeyflower 'Pt Molate'	Mimulus aurantiacus	2-3 ft ht x 3ft wide. Will need some pruning to keep low growing. Pinch to encourage more compact growth.	Very drought tolerant. No water once established. Hummingbirds attracted.
California Aster	Corethrogyne filaginifolia	1-3ft ht x 3ft wide, variable, prune to keep low.	Deciduous perennial. Bright lavender yellow centered 1" daisy like flowers summer into fall. A wildflower, pollinator and butterfly plant.
California Fuchsia	Zauschneria or Epilobium canum (low growing selections, such as 'Everett's Choice' or 'Select Mattole'))	1-2 ft x 2-3 ft wide	Fine textured gray green to silver leaves, mounding habit and bright red orange 1.5" tubular flowers in clusters later summer into fall. Deciduous during winter. Best hummingbird attracting plant. Drought tolerant. Best to cut to ground after bloom. Spreads by root runners.
California Lilac	ex. Ceanothus hearstiorum - San Simeon Ceanothus (low growing selections)	3"-6" ht x 6 ft wide	Many species and varieties, choose low growing selections. Ceanothus hearstiorum is fFlat growing, with dark green crinkled leaves and 1"deep blue flower clusters in the spring.
Coyote Mint	Monardella villosa	2ft ht x 2ft wide	Mint scented. Trailing groundcover for sun or part sun. 1" lavender puff balls July thru August. Attractive nectar source for bees and butterflies. Drought tolerant.
Douglas Iris	Iris douglasiana and hybrids and selections (ex. 'Canyon Snow' Iris Pacific Coast Hybrid)	1ft ht x eventually 3ft wide (Canyon Snow)	Ex. 'Canyon Snow' recognized as an outstanding white flowered selection. Disease resistant, little water, evergreen. Blooming in the spring.
Fragrant Pitcher Sage	Lepechina fragrans	2-3ft ht x 3ft wide. May need pruning to keep mature height lower.	Evergreen perennial with pink tube shade flowers. Blooming spring thru summer. Very drought tolerant. Attractive to hummingbirds.
Island Alum Root	Heuchera maxima, varieties	2 ft ht x 2 ft wide	Part Shade to full shade clump forming perennial with delicate airy pale pink to white flower spikes. A preferred groundcover for Coast Live Oaks.
Hummingbird Sage	Salvia spathacea	1-3ft ht x 4ft wide, may need pruning to encourage lower growth	Showy native groundcover for dry shade. Blooming late spring into summer, 1" bright magenta pink flowers emerge from spikes of burgundy calyxes. Attractive evergreen to

			semi-evergreen wavy fruity scented leaves. Low to average water.
Manzanitas	Low growing selections (ex. Arctostaphylos 'Emerald Carpet', Arctostaphylos edmundsii 'Carmel Sur', Arctostaphylos uva ursi 'Point Reyes'- Point Reyes Bearberry)	6"-12" ht x 6 ft wide	Low tidy evergreen groundcovers that are drought tolerant with pink to white small urn shaped flowers winter into spring provide bees with nectar earl in season. Edible red berries good for bears and birds.
Red Buckwheat	Eriogonum grande var. rubescens	12" ht x 2-3ft wide	Late bloomingOctober, short growing. Drought tolerant, attractive to butterflies and bees.
Seaside Buckwheat	Eriogonum latifolium	1ft ht x 2ft wide	Compact mound of softly felted blue grey spoon shaped leaves topped by pale pink 1" clusters of flowers blooming summer into fall. Used for erosion control, drought tolerant. Loved by bees, butterflies and many pollinators.
Sulphur Buckwheat	Eriogonum umbellatum	1ft tall ht x 2 ft wide	Compact evergreen mound. Blooms late spring to end of summer. Needs little or no water once established. Attractive to Bee and Butterfly.
Western Sword Fern	Polystichum munitum	2-3ft ht x 4ft wide	Drought tolerant fern recommended for growing under oaks. Adds bold visual structure. Cut old fronds back as they die. Part shade to full shade. Average to Low water.
Western Yarrow	Achillea millefolium	1-4ft ht x 2-3ft wide Will need pruning if growth gets too high. Choose low growing cultivars.	Usually a low spreading ferny leaved perennial with 3-4" clusters of white to pink flowers. Usually full sun, edge of shade under oaks. Attractive to pollinators.
Yerba Buena	Clinopodium douglasii	2" ht in. tall and spreading	Flat evergreen groundcover for shade. Easy, tough and long lived, used medicinally by native people. Makes a mint-like tea. Drought tolerant by best with a little summer water.

D-2. Bee/Pollinator Guidelines

Bees are essential pollinators in the plant world. About 75% of plants rely on an animal pollinator—most often a bee—to create seeds and fruit that produce the next generation of plants. In recent years bee populations have seen significant declines; habitat loss and pesticides are thought to be primarily responsible.

By providing food for bees—and, simultaneously, many other pollinators—we help sustain local bee populations, especially natives which can actually be more efficient and productive at pollination than honey bees.

Aside from the common European honeybee, there are some 1,600 species of native bees in California which can look quite different and do not construct and live in large, organized hives. Many native bee species form small colonies of just a few dozen adults. Some are solitary. Many live in the soil and do not make above-ground colonies.

This suggested planting palette serves bees in the following ways: it provides specific types of flowers especially rich in nectar and/or pollen that bees find most useful; the flowers bloom over a long period of time, giving bees a steady source of food during the seasons when they're most active; it concentrates many flowers in a small space, allowing the bees to forage efficiently without having to fly long distances; it emphasizes a diversity of native plants to which native bees are best adapted, thereby sustaining those bee species most adapted to California's climate.

Bee friendly traffic circle planting should avoid all insecticides and herbicides and heavy mulching (which can bury the homes of ground-dwelling native bees). A traffic circle which gets little human foot traffic can be an excellent oasis for bee colonies, especially native bees which live in small numbers and/or in the ground.

Planting a traffic circle with bee friendly plants and habitat will reward your neighborhood many times over with increased yields of vegetables, fruits, and nuts from nearby gardens.

References:

UC Berkeley Urban Bee Lab
http://www.helpabee.org/best-bee-plants-for-california.html
UC Davis Arboretum and Public Garden: California Native Bees
https://arboretum.sf.ucdavis.edu/blog/beyond-honey-bee-learn-more-about-california-native-bees
World Bee Day: Best plants to help save bees
https://www.worldbeeday.org/en/did-you-know/86-best-honey-plants-to-help-save-bees.html
Theodore Payne Foundation: Bee Friendly Native Plants
http://theodorepayne.org/wp-content/uploads/2018/07/BEE-FRIENDLY.pdf

Suggested Plants for Bees/Pollinators

~~Under Construction~~

Plant	Scientific Name	Height	CaNa	Notes
Blanket Flower	Gaillardia x grandiflora	10-14” ht x 12” wide Use varieties described as Dwarfs		Pollen and Nectar source for many native bees. Daisy like flowers summer to fall in shades of orange red and yellow many banded. Perennial, but short lived 2-3 years. Drought tolerant.
Blue Thimble Flower	Gilia capitata	12-18” ht x 12” wide	Ca Native	Annual native wildflower loved by pollinators as pollen and nectar source. Ferny foliage and lavender blue flower clusters spring into summer. May self sow.
Borage	Borago officinalis	2-3ft ht x 1-2ft wide		Annual Herb, reseeds, Spring to summer bloom of start shaped Clear Blue flowers. Poor soil, drought tolerant Mediterranean. Edible.
Calamint	Calamintha ssp. Ex. C.nepeta	1-2ft ht x 1ft wide		Airy plumes of tiny barely blue flowers over mint scented oregano like foliage bloom summer to fall. Bees love it, drought tolerant. herb/perennial.
California Aster	Corethrogyne filaginifolia	1-3ft ht x 3ft wide, variable, prune to keep low.	Ca Native	Deciduous perennial. Bright lavender yellow centered 1" daisy like flowers summer into fall. A wildflower, pollinator and butterfly plant.
California Buckwheat	Eriogonum fasciculatum	2-3ft ht x 2-3ft wide	Ca Native	Small evergreen shrublet with clusters of cream colored flowers April to October, aging pink to rust. Attractive to many pollinators. Seeds prized by birds. Drought tolerant once established.
California Lilac	ex. Ceanothus hearstiorum - San Simeon Ceanothus (low growing selections)	4” ht x 5 ft wide	Ca Native	Flat growing, dark green crinkled leaves and 1"deep blue flower clusters in the spring. C. hearstiorum likes clay, not sand. Better with some summer water (Native to foggy coast).
California Lilac Low Blue Blossom	Ceanothus thyrsiflorus repens	2ft ht x 6 ft wide prune to keep low	Ca Native	Evergreen prostrate shrub that can be 6” ht but also mounds - pruning required to keep low. Round dark green leaves, clusters of light blue flowers in spring. Drought tolerant, but likes to washed off occasionally. Attractive to bees as well as a butterfly host plant.
California Poppy	Eschscholzia californica	1-1.5ft ht x 1ft wide	Ca Native	Perennial grown as Annual. Reseeds. Start from seeds or plants. Drought tolerant state flower. Mainstay Pollen source for many native bees.
Coyote Mint	Monardella villosa	2ft ht x 2ft wide	Ca Native	Mint scented. Trailing groundcover for sun or part sun. 1" lavender puff balls July thru August.

				Attractive nectar source for bees and butterflies. Drought tolerant.
Fernleaf Carpet Tickseed	Bidens ferulifolia	12” ht x 1.5 ft wide		Short lived perennial (3-5yrs) Native to US/Mexico. Drought, deer and heat tolerant. Bright yellow daisies summer to fall or more. Moderate to low water.
Frikart’s Aster	Aster x frikartii ‘Monch’	2ft ht x 2ft wide		Moderate water, sun part shade, pruning late spring will lower overall ht. Cut to ground after bloom. Late summer fall bloom provides nectar and pollen late in season. Lavender Blue 2”daisy flowers in profusion. Attractive to butterflies too.
Hairy Gumplant	Grindelia hirsutula	1-2ft ht x 1-2ft wide	Ca Native	Low herbaceous perennial, 2” sunny yellow daisies, summer to fall. Drought tolerant, but best with some summer water. Pollen and nectar source. G. stricta. Similar, lower growing.
Hummingbird Mint	Agastache spp.	2-3ft ht x 2ft wide	West US Native	Long blooming perennial, hummer magnet, spikes of orange flowers, minty fragrant leaves. Low water once established
Lavender	Lavandula spp.	1-2ft ht x 1-3ft wide		Choose dwarf varieties that mature at or below guideline mature ht. Example: Hidcote - darkest purple, Munstead - blue w/grey foliage. Summer bloom of lavender flower clusters. Fragrant.
Manzanitas	Low growing selections (ex. Arctostaphylos 'Emerald Carpet', Arctostaphylos edmundsii 'Carmel Sur', Arctostaphylos uva ursi 'Point Reyes'- Point Reyes Bearberry)	6”-12”ht x 6ft wide	Ca Native	Low neat evergreen groundcover shrubs that are drought tolerant with pink to white small urn shaped flowers winter into spring provide bees with nectar early in season. Bumblebees. Edible red berries good for birds.
Pot Marigold	Calendula officinalis	12-18” ht x 12”wide		Short lived perennial grown as annual. Winter to spring bloom, Yellow and Orange Daisy like flower is edible. Easy to start from seed.
San Miguel Island Buckwheat	Eriogonum grande var. rubescens	12" ht x 2-3ft wide	Ca Native	Low growing. Drought tolerant, attractive to butterflies and bees. Red pink pom pom clusters Summer bloom.
Sea Holly	Eryngium spp.	1-2ft ht x 1-2ft wide		Thistle like perennial produces striking purple blue flowers with silver bract collars, often deeply lobed leaves. Drought tolerant. Very attractive to bees. Blooms summer to fall.
Seaside Buckwheat	Eriogonum latifolium	1ft ht x 2ft wide	Ca Native	Compact mound of softly felted blue grey spoon shaped leaves topped by pale pink 1" clusters of flowers blooming summer into fall. Used for erosion control, drought tolerant. Loved by bees, butterflies and many pollinators.

Squash	Squash, Pumpkin and Zucchini	2ft ht x 6 ft wide		Vegetable. Summer annual. Needs moderate water. Bushy to rambling vine. Large yellow trumpet shaped flowers attractive to bees. Food for humans after bees get Nectar and Pollen.
Sulphur Buckwheat	Eriogonum umbellatum	1-3ft ht x 2 ft wide, can mound high, may need pruning to keep lower	Ca Native	Compact evergreen mound. Cream to yellow flower clusters late spring to end of summer. Needs little or no water once established. Attractive to Bee and Butterfly.
Tickseed	Coreopsis spp.	1-2ft ht x 1-2ft wide	US	Short lived perennial (3-5yrs) Drought tolerant, long blooming, profuse, cheerful yellow to yellow and maroon daisy-like flowers summer to fall. Moderate water until established
Tidy Tips	Layia platyglossa	1.5ft ht x 1.5ft wide	Ca Native	Native annual wildflower. Spring 2” yellow with white edges daisies. Many types of bees at low numbers. Pollen and nectar source.
Toadflax	Linaria purpurea	2-3ft ht x 1ft wide		Easy slender spikes of tiny violet lavender purple snapdragon like flowers over narrow blue grey leaves. Blooms summer. Perennial and reseeds. Many pollinators attracted.
Wayne Roderick Daisy	Erigeron glaucus ‘Wayne Roderick’	1ft ht x 1-2ft wide	Ca Native	Pollen and Nectar source for bees. Profusion of 2” lavender daisies with golden centers, easy tough and reliably perennial. Long blooming Spring to Fall with some deadheading. Drought tolerant. Better with some summer water.
Western Yarrow	Achillea millefolium	1-3ft ht x 3ft wide, variable, prune to keep low.	Ca Native	Usually a low spreading ferny leaved perennial with 3-4” clusters of white to pink flowers. Long bloom season. Attractive to pollinators.

D-3. Butterfly Habitat Guidelines

> *"The power to enrich a patch of earth with beautiful butterflies, no matter how humble the plot or simple the effort, is awesome"*
>
> *-Robert Michael Pyle, author, lepidopterist*

Our Bay Area is home to 142 species of butterflies and they depend on specific types of plants. The Bay Area also has the largest concentration of endangered butterfly species in California.

Habitat loss is a primary cause of decreasing populations of butterflies. Berkeley is home to many of these species and by planting for their specific needs we can help keep butterflies flying in our neighborhoods.

Despite the common and understandable focus on planting pretty flowers to provide nectar for adult butterflies, butterflies actually have two more essential needs. First, each species has certain plants—sometimes just one kind of plant—on which its larva / caterpillars feed; planting those species is the way to provide useful habitat, even if there aren't flowers in the same place. Second, pesticides kill butterflies and their caterpillars and should not be used in their habitat.

There are four stages of the butterfly's lifecycle —the egg, the caterpillar or larva, the chrysalid in which the larva turns into the winged butterfly, and the adult butterfly. A traffic circle can provide excellent space for all these life stages, starting with low growing caterpillar food plants.

Some spectacular species common to Berkeley are the Monarch, Western Tiger Swallowtail, Anise Swallowtail, Pipevine Swallowtail, West Coast Lady, Red Admiral, Gulf Fritillary, Buckeye, Cabbage White and Fiery Skipper Butterfly.

The suggested plants below can all grow low and thrive in traffic circles and provide food plants that will help generate a glorious annual bloom of butterflies like these for the surrounding neighborhood.

Suggested Plants for Butterflies

~~Under Construction~~

Plant	Nectar Or HOST	Scientific Name	Height	CaNa	Notes
Apricot Monkey-flower Bush	Larval Host	Mimulus bifidus	2-3 ft ht x 2-3 ft wide, might need some pruning to keep lower	Ca Native	Spectacular 2" azalea like flowers. No irrigation once established, but better with a little water. Attracts hummingbirds. Host plant for Checkerspot and Buckeye Butterflies.
Pincushion Flower 'Butterfly Blue'	Nectar only	Scabiosa 'Butterfly Blue'	12-18" ht x 12-18" wide		One selection of many scabiosa. This one is perennial, low mounding and blooms for a long period. Summer to late fall. Frilly flat lavender 2" flowers. Moderate water best.
California Aster	Nectar & Host	Corethrogyne filaginifolia	1-3ft ht x 3ft wide, variable, prune to keep low.	Ca Native	Deciduous perennial. Bright lavender yellow centered 1" daisy like flowers summer into fall. A wildflower, pollinator and butterfly plant.
California Lomatium	Larval Host	Lomatium californicum	1ft ht x 1ft wide, narrow flower stalk 30" ht	Ca Native	Forms clumps of beautiful ferny blue green leaves. Looks like celery. No irrigation once established, Anise Swallowtail Butterfly host plant.
California Lilac Low Blue Blossom	Nectar & Host	Ceanothus thyrsiflorus repens	2ft ht x 6 ft wide prune to keep low	Ca Native	Evergreen prostrate shrub that can be 6" ht but also mounds - pruning required to keep low. Round dark green leaves, clusters of light blue flowers in spring. Drought tolerant, but likes to washed off occasionally. Tortoiseshell Butterfly host plant. Attractive to pollinators too.
California Showy Milkweed	~~Larval Host and nectar~~ Nectar & Host	Asclepias speciosa	3-4ft ht x 3ft wide	Ca Native	Monarch Butterfly caterpillar food. Deciduous (disappears in winter) Fuzzy leaved stalks with 5"clusters of star shaped rose & white flowers. Spreads by underground rhizomes. Sun. Some summer water appreciated.
Checker-bloom	Nectar & Host	Sidalcea malviflora	2ft ht x 1ft wide	Ca Native	Perennial wildflower. Dense low 6" mound of small round scalloped leaves, 12-20" spikes of bright to dark pink 1" flowers in spring. Native larval host plant for Westcoast Lady Butterfly.

Coyote Mint	Nectar only	Monardella villosa	2ft ht x 2ft wide	Ca Native	-Mint scented. Trailing groundcover for sun or part sun. 1" lavender puff balls July thru August. Attractive nectar source for bees and butterflies. Drought tolerant.
De la Mina Verbena	Nectar	Verbena lilacina 'De La Mina'	3ft ht x 3ft wide	Ca Native	Long blooming perennial, profuse 1" clusters of lavender flowers spring summer into fall. Better with occasional summer water. Attracts pollinators.
Dill	Larval Host	Anethum graveolens	2ft ht x 6" wide	Herb	Annual grown from seeds. Widely used culinary herb by many Old World cultures. Anise Swallowtail Butterfly caterpillars use as host plant. Start seed in summer, regular water.
Fernleaf Carpet Tickseed	Nectar only	Bidens ferulifolia	12" ht x 1.5 ft wide		Short lived perennial (3-5yrs) Native to US/Mexico. Drought, deer and heat tolerant. Bright yellow daisies summer to fall or more. Small butterfly nectar. Moderate to low water.
Frikart's Aster	Nectar only	Aster x frikartii 'Monch'	2ft ht x 2ft wide		Moderate water, sun part shade, pruning late spring will lower overall ht. Cut to ground after bloom. Late summer fall bloom provides nectar and pollen late in season. Lavender Blue 2"daisy flowers in profusion. Attractive to butterflies & bees.
Frogfruit Lippia	Nectar ~~and~~ & Host	Lippia nodiflora	1-4" ht x 2ft wide. Can be invasive spreader Or lawn substitute	Ca Native ?	Evergreen perennial flat groundcover. 1/2" flower clusters like tiny lantana in pink and white. Host for Buckeye Butterfly. Attractive to pollinators.
Grasses	Larval Host	Poacea family	1-2ft ht x 1ft wide	Ca Native +	Fiery Skipper butterfly caterpillars feed on grasses. In urban areas mostly on Bermuda Grass. Also feed on several native grasses ex. Purple Needlegrass (Nassella pulchra)
Lovage	Larval Host	Levisticum officinale	2-6ft ht x 4ft wide Usually much smaller in our dry climate. Prune to keep low for traffic circles.	Herb	Perennial Herb. Looks and grows like a big Parsley, leaves all originating from central basal rosette. Carrot like flowers. European herb that Anise Swallowtail caterpillars eat. Prune to keep low growing. Need moderate water. All parts of plant edible to humans too.
Narrow leaved Milkweed	Larval Host	Asclepias fascicularis	2-3ft ht x 2-3ft wide	Ca Native	Deciduous/semi deciduous perennial. 5"flower heads creamy white. Larval host plant for Monarch Butterfly. Full sun, occasional summer water.
Narrowleaf Plaintain	Larval Host	Plantago lanceolata	3-15" ht x 10"wide		Rosette forming perennial herb. Lance shaped base leaves. Flower stalks narrow ending in 1" club. Often seen in lawns. Primary Bay Area Larval host of the Buckeye Butterfly. Moderate water.

Nasturtium	Larval Host	Tropaeolum majus	1ft ht x 2-3ft wide		Annual trailing herb. Sow seeds before winter rains. Reseeds. Larval host for European Cabbage White Butterfly. Better with some summer water. Clean up dead foliage after flower slows.
Parsley	Larval Host	Petroselinum crispum	10" ht x1ft wide	Herb	Biennial grown as annual, reseeds. Mediterranean herb/vegetable used by Anise Swallowtail caterpillars as host plant. Grows best with regular water, bees and birds also attracted.
Pellitory	Larval Host	Parietaria judaica	18" wide x 3ft wide	Weed	Herbaceous perennial, considered a weed. Larval food plant for the Red Admiral butterfly. Drought tolerant, evergreen, dense mound forming. May cause allergic reactions in some people.
Red Buckwheat	Nectar & Host	Eriogonum grande var. rubescens	12" ht x 2-3ft wide	Ca Native	Long blooming~~October~~, short growing. Drought tolerant, Larval host for Lycaenid butterflies.
Seaside Buckwheat	Nectar & Host	Eriogonum latifolium	1ft ht x 2ft wide	Ca Native	Compact mound of softly felted blue grey spoon shaped leaves topped by pale pink 1" clusters of flowers blooming summer into fall. Drought tolerant. Caterpillar host for Blue butterflies.
Sulphur Buckwheat	Nectar & Host	Eriogonum umbellatum	1ft ht x 2 ft wide	Ca Native	Compact evergreen mound. Blooms late spring to end of summer. Needs little or no water once established. Caterpillar food for Gossamer Wing butterflies.
Toadflax	Larval Host	Linaria purpurea	2-3ft ht x 1ft wide		Easy to grow, slender spikes of tiny violet lavender purple snapdragon like flowers over narrow blue grey leaves. Blooms summer. Perennial and reseeds. Larval host of Buckeye Butterfly caterpillar.
Western Yarrow	Nectar Only	Achillea millefolium	1-3ft ht x 3ft wide, variable, prune to keep low.	Ca Native	Usually a low spreading ferny leaved perennial with 3-4" clusters of white to pink flowers. Long bloom season. Attractive to pollinators.
Yampah spp.	Larval Host	Perideridia ssp ex.P.kelloggii - Native to SF Bay Area. P.bolanderi native to western US.	1-3ft ht x 1ft wide	Ca Native	Ancient Native host plant for Anise Swallowtail Butterfly. Current urban caterpillars feed on introduced Fennel. Yampah is perennial, small greyish parsley-like plant with tall flat topped carrot-like flower stalk. Plant several to provide food for caterpillars

D-4. Native Wildflowers Guidelines

This palette draws on the rich wildflower meadows and flowering trees of the East Bay, bringing the colors and aromas of native California into our neighborhoods. The mix of native flowers provides pollen and nectar for native bees, butterflies, and other insects as well as providing high-value leaves and seeds for birds and insects. This array of flowering plants provides floral continuity through the year, so local species have reliable resources year-round.

One possible source for Wildflower seeds would be Larner Seeds of Bolinas CA. https://www.larnerseeds.com/store/term/wildflower-seed-mixes

~~UNDER CONSTRUCTION~~

Suggested Wildflower Plants

Plant	Scientific Name	Height	CaNa	Notes
Azalea flowered Monkeyflower	Diplacus grandiflorus	1-2ft ht x 2ft wide	Ca Native	Large azalea like flowers. No irrigation once established, better with a little water and some shade. Attracts hummingbirds. Host plant for Checkerspot and Buckeye Butterflies.
Bolander's Phacelia	Phacelia bolanderi	1ft ht x 0.5ft wide	Ca Native	Papery inch wide lavender flowers late spring thru summer. Perennial groundcover, appreciates some summer water and some shade. Bee pollen and nectar source.
California Fuchsia	Zauschneria or Epilobium canum Use Low growing selections such as 'Everett's Choice' or 'Cloverdale'	1-2ft x 2-3ft wide	Ca Native	Fine textured gray green to silver leaves, mounding habit and bright red orange tubular flowers in clusters later summer into fall. Can be winter deciduous. Best hummingbird attracting plant. Drought tolerant. Cut back during winter.
California Poppy	Eschscholzia californica	1-1.5ft ht x 1ft wide	Ca Native	Iconic California Wildflower. Perennial often grown as Annual. Reseeds. Start from seeds or plants. Drought tolerant state flower. Mainstay Pollen source for many native bees.
Coast Gum Plant	Grindelia stricta platyphylla	6" ht x 2-3ft wide	Ca Native	Low herbaceous perennial groundcover with 2"wide sunny yellow daisies, summer to fall. Drought tolerant, but best with some summer water. Bee pollen and nectar source.
Douglas Iris	Iris douglasiana and hybrids and selections (ex. 'Canyon Snow' Iris Pacific Coast Hybrid)	1ft ht x eventually 3ft wide (Canyon Snow)	Ca Native	Perennial. Appreciates some summer water. Many hybrids, many colors, most lavender purple blue white and yellow. Example 'Canyon Snow' recognized as an outstanding white flowered selection. Disease resistant, little water, evergreen. Blooming in the spring.

Dwarf Lupine	Lupinus nanus	12-18" ht x 1ft wide	Ca Native	Also called Sky Lupine. Annual wildflower that turns California fields blue in the spring. Reseeds. Seeds need moisture to germinate.
Fairyfan Farewell-to-Spring	Clarkia williamsonii	12-14" ht x 12" wide	Ca Native	Magenta blotched lavender pink silky cup shaped flowers in late Spring into Summer. Annual that reseeds. Needs good drainage. Appreciates a little supplemental water.
Great Valley Phacelia	Phacelia ciliata	16" ht x 16" wide	Ca Native	Beautiful self sowing annual. Clusters of cupped lavender blue flowers over ferny foliage. Good for bees.
Red Buckwheat	Eriogonum grande var. rubescens	12" ht x 2-3ft wide	Ca Native	Low growing perennial. Drought tolerant, attractive to butterflies and bees. Red-pink pom pom clusters of flowers summer thru fall.
Sulphur Buckwheat	Eriogonum umbellatum	1-3ft ht x 2 ft wide, can mound high, may need pruning to keep lower	Ca Native	Compact evergreen mound. Cream to yellow flower clusters late spring to end of summer. Needs little or no water once established. Attractive to Bee and Butterfly.
Western Yarrow	Achillea millefolium Choose low growing selections like 'Salmon Beauty' Yellow 'Moonshine' or white "Sonoma Coast'	1-2ft ht x 2ft wide	Ca Native	Usually a low spreading ferny leaved perennial with 3-4" umbels of flowers in cream, white, yellow, salmon,pink or red. Flowers summer thru fall. Drought tolerant, but better with a little water. Cut flowers back in late fall/winter. Attractive to pollinators.

E. Pruning Standards & Guidelines:

https://sfenvironment.org/sites/default/files/fliers/files/sfe_uf_pruning_guide.pdf

City of Berkeley Traffic Circle Policy Task Force
Operation and Maintenance Sub-Committee
Draft Policy Statement, July 19, 2019

The Berkeley City Council should direct the City Manager to have the Public Works Department formalize and create the Traffic Circle Community Stewardship Program to support the management of neighborhood traffic calming. The program will establish a partnership with a clear set of guidelines for community volunteers who adopt and maintain traffic circles, address safety concerns, as well as define responsibilities between the City and community volunteers. There isn't a real "home" or ownership for traffic circles within the City's departments, and there isn't consistent communication with community members about rules, plants, maintenance, roles or responsibilities. With a few serious traffic interactions between cars and people at traffic circles recently in Berkeley, there is a need to address the traffic circles in a more comprehensive manner and support the community volunteers and neighborhoods who have been mainstays of the traffic circle program.

1. Develop a Formal Partnership Program within Public Works
   Berkeley has many civic-minded and engaged community members who volunteer their time and resources maintaining parks, open spaces and traffic circles. There is no formal mechanism for the City to engage these volunteers or to recruit new ones, although the City does have successful working relationships with community organizations who maintain some public spaces including Berkeley pedestrian paths and The Circle on Marin Avenue. Berkeley City leaders have expressed their willingness to work with the community and develop a real partnership by creating and supporting the establishment of the Traffic Circle Policy Task Force. A formal partnership program needs a shared commitment and written guidelines, structure, budget and resources to deliver the benefits to both the City and the community. There are many existing community-based partnership programs in the San Francisco Bay Area as well as around the country. The City of Oakland's "Adopt a Spot" program is a long-standing and successful model that has also served as a template for similar programs in Livermore and Richmond and should be considered a template for the City of Berkeley's program. In addition, members of the Traffic City Policy Task Force have done considerable research and found many good examples of other programs around the country that can be found in Appendix X.

2. Provide Staff Resources
   In order to establish and operate a successful partnership program, staff resources are required. Staffing could be provided through the City or through an existing non-profit entity that would be contracted for staff resources (at this point it's not clear if this would be a full-time position or could be part time after the program is set up). A Traffic Circle Community Engagement Coordinator would report to Public Works and be responsible for coordinating with all existing traffic circle volunteers, recruiting new volunteers, act as a liaison between community volunteers and City staff, coordinate between Public Works, Parks and Recreation and Planning Departments as well as third-party utilities, and develop and maintain an on-line tool for tracking traffic circle compliance and administration. The Coordinator would also be responsible for developing an annual

budget, hosting annual work days, provide assistance with technical issues, and develop a plant discount program, free mulch delivery, tool and safety equipment lending library, and a green infrastructure mini-grants program with matching funds and/or in-kind support. The Coordinator and City leaders should explore consolidating all resources and responsibilities for traffic calming measures (traffic circles, bulb-outs, traffic diverter replacement/conversions and parklets) as well as supporting the Berkeley Bicycle Plan under the Traffic Circle Community Stewardship Program. The core goal of this position should be nurturing and supporting a Citywide and expanding program of traffic circles that are both beautiful and safe and that make use of community volunteer resources, while also coordinating City staff resources and interests as they apply. It should be noted that this position could also be defined to coordinate City staff and volunteer stewardship resources (through friends of parks and creeks groups) and efforts associated with maintaining and enhancing city parks, creeks, and open spaces. In this case, additional FTEs/staff capacity would likely be required.

3. Enhance Relationship between Public Works and Community Volunteers
   Public Works needs to cultivate and enhance its reputation and relationship with the community volunteers to implement a successful program. The Traffic Circle Policy Task Force's report and recommendations and the City's approval and adoption is only the first step to implementation. Any changes to the status quo (where there is no program and no publicized or consistent rules) will be new and possibly startling to the community. A thoughtful communication plan with multiple ways to communicate within a set time period should be developed in concert with rolling out the new policy and program. Public Works should also strive to be seen as an ally and support for the community volunteers with expertise and resources to support them and the program. Public Works and the Coordinator should investigate incentives to help recruit additional community volunteers, especially in under-represented neighborhoods of the City. It is also recommended that Public Works establish an advisory board comprised of leaders within Public Works, Parks and Recreation, and Planning Departments and a representative group of relevant Commission representatives and community volunteers to meet periodically to review the programs progress. Note, we are not suggesting a new commission, with all the issues that would entail.

4. Structure Volunteer Program and Resources
   All of the community volunteer programs that the Traffic Circle Policy Task Force reviewed have a more formal structure for their programs and volunteers. Typical elements include: a volunteer job description used for recruiting purposes, volunteer application or agreement with a minimum term, maintenance rules and guidelines, planting guidelines, and safety rules and guidelines. Public Works should borrow from the best programs, specifically Oakland's "Adopt a Spot," to develop the documents needed to support the program. All program documents should be maintained on the City's website with easy to use on-line applications and approvals.

   This proposed program and its recommendations are designed in part to reduce City liability and risk from traffic circles. By the same token, the City should be willing to extend protection from liability to neighborhood volunteers who maintain traffic circles

and are in compliance with the program. The advice of the City Attorney and specialized legal experts on municipal volunteer programs should be sought in formalizing this two-way arrangement.

5. Provide a Clear Set of Guidelines and Best Practices for Safety and Maintenance Activities

   Whether community volunteers are experts or novices, everyone needs common sense guidelines for safely maintaining the traffic circles. Most of the cities that support volunteer programs have all of the documents on the city's website. These guidelines and best practices will be important to help ensure compliance with overall vegetation traffic calming measures over time, as plants grow and obscure sightlines and as volunteers turn over. The coordinator and community volunteers could also work together by hosting demonstrations, workshops, and work days to share knowledge and expertise.

   Here is a suggested list of topics for Guidelines and Best Practices (which will be more fully developed by the end of August, 2019)
   Operation and Maintenance Guidelines and Best Practices:
   1. General conduct, safety, tools, watering
   2. Managing sightlines and vegetation
   3. Plant maintenance, pruning, weeding, new planting and tree replacement and/or removal
   4. Integrated Vegetation Management and Pest Control
   5. Garbage and Debris Removal
   6. Decorations, boulders, bird feeders, etc.
   7. Coordinating with Public Works,
   8. Self-Certification of Compliance with Best Practices
   9. On-line Arc-GIS/Google Maps traffic circles GIS database

   It is important to emphasize that guidelines should be common sense but not punitive, onerous, unreasonable or bureaucratic. Community volunteers are already giving a considerable amount of free time to maintain City spaces. The goal of City policy should be to support their contributions in a safe and reasonable manner and to find ways of recognizing and acknowledging their efforts.

6. Develop and Implement Consistent Traffic Standards for all Traffic Circles

   Unlike large arterial and collector road round-a-bouts, neighborhood traffic circles located on local streets are designed first for traffic calming and not primarily for efficiently moving traffic quickly along the road. This is a fundamental issue. The City's existing (2009) Traffic Calming Policy is useful to quote in this regard:

   "Traffic calming is intended to reduce the impact of motor vehicles on roadways, residents and road users. In Berkeley, this means primarily the reduction of motor vehicle speeds…Physical traffic calming measures are categorized in two ways: (1) vertical deflection: raising the road by using speed humps or speed tables, and (2) Horizontal shift moving vehicles off a certain alignment from one side or another (e.g.

traffic circles). Generally, physical traffic calming measures are the most effective form of traffic calming available."

The Council should note that nowhere in that policy is an expectation or requirement that traffic circles should exist to make it easier for motor vehicles to move speedily or more efficiently along neighborhood streets. In fact, the opposite is the case.

Members of the Traffic Circle Policy Task Force have taken note of the various street intersections where traffic circles are located and the different traffic signing, speed limits, and crosswalk marking standards used.

The City should inventory all existing traffic circle intersections and develop consistent standards for signing, speed limits, installing traffic tables, etc. with an implementation timeline. Effective and safe traffic circles don't end at their curb-line. The City should work towards other holistic street improvements and modifications that will improve safety at traffic circle intersections. These might include: a uniform speed limit reduction at all intersections with traffic circles on neighborhood streets; uniform signage that clearly communicates expectations for drivers (the current ambiguous "Yield to traffic in circle" signs do not do this); four-way stop signs at all neighborhood circles; bulb outs or speed tables on the adjacent streets that act to mechanically reduce vehicle speeds, particularly for those drivers who ignore posted signage.

Pedestrians, cyclists, and motor vehicle drivers should be able to expect consistency in City rules for traffic circles. It is often this uncertainty—the driver, bicyclist or pedestrian who doesn't realize they've come to a two-way, not four-way, stop sign intersection around a circle—that increases hazards, not the existence or character of the circle itself.

Traffic Circles - Policy Alignment Issues - Subgroup 3 DRAFT 7-19-2019

Subgroup #3 task: Assess coordination needs for working within City policies and cooperatively with regional and state agencies; Current traffic circle policy: here

Members: Jean Pfann, Charlene Woodcock, Wendy Alfsen, Fred Krieger, John Steere, Diane Ross-Leech

Current task: *Subcommittees send the primary elements of their policy to Tano by July 19.*

Current situation and its effects

Traffic Circles are islands in the middle of an intersection that encourage motorists to slow down to maneuver around the circle. A major benefit of traffic circles is that vehicles do not need to cut directly in front of oncoming traffic to make a left turn. This tends to eliminate broadside hits, which are often the deadliest intersection crashes

Currently, Berkeley has 62 [?] traffic circles in the middle of intersections. In other locations, Berkeley also has bulb-outs extending from the sidewalk into the street. Both the traffic circles and bulb-outs have vegetation, including trees in some cases. This vegetation is generally maintained by the neighbors. Greenery in and along streets makes Berkeley a more beautiful city and is critical to Berkeley's livability and success as a place.

Berkeley currently has a traffic circle policy which is being revised with the assistance of the Traffic Circle Policy Task Force. The Task Force is composed of interested citizens, mostly volunteers who maintain the current traffic circles. The Task Force is being coordinated by the Mayor's Office.

In a recent lawsuit against the City, the plaintiff alleged traffic circle vegetation obstructed the view of an approaching driver and contributed to a collision with a pedestrian. The purpose of this new policy is to identify the appropriate design and operation characteristics of traffic circles that provide both traffic calming and other benefits while maintaining pedestrian safety.

(*Recommendations and suggestions are presented later in this document*)

Goals

Short version: This Policy intends to support the construction and maintenance of traffic circles. The Policy may be expanded to include related street facilities such as bulb-outs. The goals of traffic circles are to increase public safety by calming traffic and to create a desirable streetscape for the public to enjoy.

Long version: The goals of the traffic circle program include the following:

- Maintain traffic calming benefits of traffic circles
- Help beautify Berkeley - *Greenery in and along streets makes Berkeley a more beautiful city and is critical to Berkeley's livability and success as a place*
- Encourage joint activities by neighbors and friends for the betterment of Berkeley
- Maintain visibility to protect pedestrians and bicyclists
- Capture and infiltrate rainfall
- Reduce noise pollution (enhance noise abatement through the use of vegetation)

- Provide habitat for native creatures (birds, butterflies)
- Increase carbon sequestration (current traffic circles constitute ½ to 1-acre total surface area; trees are about 50% carbon)
- Help cool the urban environment.

Conformance with Berkeley Plans and Policies

This section provides a review of existing plans and policies and identifies sections that are relevant to the implementation of traffic circles.

- **General Plan**

  The General Plan directly addresses traffic circles and encourages their construction, particularly for traffic calming. The Transportation Element describes its function:

  > *Traffic circles and bulb-outs have been used successfully in Berkeley neighborhoods to calm traffic without diverting traffic onto neighboring streets.*

  Also, Policy T-22, ***Traffic Circles and Roundabouts***, states:

  > *Encourage the use of landscaped traffic circles to calm traffic in residential areas.*
  >
  > ***Action**: A. Consider roundabouts as a viable traffic-calming device, especially at the Shattuck and Adeline intersection, the Gilman Street Freeway on and off-ramps, and at other appropriate intersections in the city.*

  The Public Works Transportation Division provides additional material on the benefits, including data indicating a significant reduction in collisions. These studies have shown that traffic circles reduce automobile speeds at intersections by up to 10% and that they reduce collisions significantly. To facilitate fire truck access, a minimal amount of parking might be prohibited at some intersections, depending upon the intersection layout.

- **Berkeley Climate Action Plan**

  This Plan is an emissions elimination or prevention strategy. The Action Plan identifies traffic circles and other modifications as essential to slow or reduce automobile traffic and make walking and cycling more safe and viable. The Plan also suggests that replacing stop signs with yield signs at traffic circles on bicycle boulevards would improve the flow of cycling, consistent with public safety.

  To change commute patterns, travelers, including bicyclists and pedestrians, require increased safety, that is, reduced vehicle speeds and volumes. Traffic circles are recognized traffic calming measures on a local street. Without vehicle speed and volume reduction to improve safety, the necessary changes to travel modes will not occur. A complementary benefit is that trees and plants sequester carbon.

  The Climate Action Plan states:

  > **Policy:** Promote tree planting, landscaping, and the creation of green and open space that is safe and attractive, and that helps to restore natural processes

A healthy urban forest has several benefits, including:

- Reducing the energy consumption associated with air conditioning buildings by providing shade
- Reducing local ambient temperatures by shading paved and dark-colored surfaces like streets and parking lots that absorb and store energy rather than reflecting it
- Intercepting and storing rainwater, thereby reducing water runoff volume
- Improving community quality of life through beautification and by reducing noise pollution and encouraging pedestrian traffic

Implementing actions include:

- Maintain and protect mature trees wherever possible and maximize tree planting as part of public open space and street improvements.
- Consider developing a tree preservation ordinance that would articulate strong standards for the preservation and replacement of trees in the public right of way.
- Identify opportunities for tree planting and to maintain existing and create new public open spaces to increase community access to parks and plazas. The City should ensure that as development increases along certain transit corridors, it is accompanied by an appropriate level of tree planting and green and open space enhancements.
- Establish standards and guidelines to ensure that ecologically beneficial stormwater quality and retention features and water conservation features are integrated into the design of landscaping features on both public and private land.
- Identify opportunities to modify City streets to better serve the safety and needs of pedestrians and cyclists. Street modifications that serve to slow or reduce automobile traffic and make walking and cycling more safe and viable include traffic circles and allocating additional roadway space to cyclists. The City should develop and adopt “Complete Streets” design standards, and routinely accommodate bicycle and pedestrian improvements in all streets and sidewalks projects.
- Identify and implement opportunities to improve the flow of cycling along bicycle boulevards, consistent with public safety, including consideration of replacing stop signs with yield signs at traffic circles on bicycle boulevards. Many Berkeley cyclists see the stop signs as unnecessary and inconvenient given that the traffic circles already effectively slow automobile traffic, and are designed to function as “all-yield” intersections.

Therefore, a City Traffic Circle Policy which effectively increases non-gasoline vehicle travel and provides carbon sequestration is critical to reaching the City’s Climate Action Plan goals

- **Berkeley Pedestrian Master Plan**

The Pedestrian Master Plan strongly supports the traffic calming benefits and safety improvements provided by traffic circles. The Plan reports a Vancouver study that showed an average collision reduction of 40 percent in four neighborhoods that used a combination of traffic calming types, including traffic circles. The Plan also identifies some constraints:

- Fire Department approval of design (which may include removal of parking spaces to allow trucks to pass by the traffic circles.
- Landscaping should be based on low-growing shrubs that maintain visibility for pedestrians, particularly those in wheelchairs.

***Key requirements of the Pedestrian Master Plan*:**

4.3.2. TRAFFIC CIRCLES

Traffic circles are located in intersections throughout the southern and western areas of the City. There were 62 traffic circles at the start of the planning process, with many additional traffic circles being constructed through the duration of the plan. Most of the traffic circles are along Blake, Carleton, Fulton, Ellsworth, Stuart, Parker, and Woolsey and California Streets. California Street has the most traffic circles of any street in the city. Traffic circles are accepted by the Berkeley Fire Department, provided the department has approval over the design.

4.3.3. TRAFFIC DIVERTERS

Traffic diverters, like traffic circles, are mostly located in the southern, central, and western portions of the city. The diverters complement the use of traffic circles and speed humps. There are a total of [XX] traffic diverters. The type of diverter varies from landscaped barriers to wide planter-type bollards. The diverters are completely permeable to pedestrians and bicycles but not to motor vehicles. There is a mixture of full diverters and semi-diverters which allow motor vehicle traffic through in one direction. A majority of diverters are located along streets surrounding the east-west portion of the Ohlone Greenway that parallels Ohlone Park and along streets feeding to Ashby Avenue.

_____

10.4.4.3. LOCAL TRAFFIC CALMING FUND

(p. 10-13) The Berkeley City Council has made an annual allocation from the General Fund of $50,000, which is utilized by the Department of Public Works to respond to residents' traffic calming requests. Periodically, the Council has made special one-time allocations of funding to supplement this program; for example, in 2008 an additional $200,000 was programmed for traffic calming requests. These funds have been applied toward traffic circles, curb bulbouts and speed feedback signs. It is likely that this fund will be continued at a minimum level of $50,000 and may be increased.

_____

8. TRAFFIC CALMING

(p. B-31) Traffic calming interventions slow traffic by modifying the physical environment of a street. The City of Berkeley has employed a variety of traffic calming measures, including speed humps, chokers, traffic circles and both full and partial street closures.

Research into the efficacy of traffic calming devices to improve pedestrian safety has shown that traffic calming can reduce the number of automobile collisions. A Vancouver study published in 1997 showed an average collision reduction of 40 percent in four neighborhoods that used a combination of the traffic calming types described below. [Reference to "*Safety Benefits of Traffic Calming*"

Care should be taken to ensure that any landscaping in the [*traffic*] circles uses low-growing shrubs that maintain visibility for pedestrians, particularly those in wheelchairs. The City maintains a list of acceptable plant species for traffic calming circle plantings.

[Comment: A definition of "low-growing shrubs" would be helpful.]

- **Berkeley Bicycle Plan**

[The following is a condensed description of the plan and its implementation.]

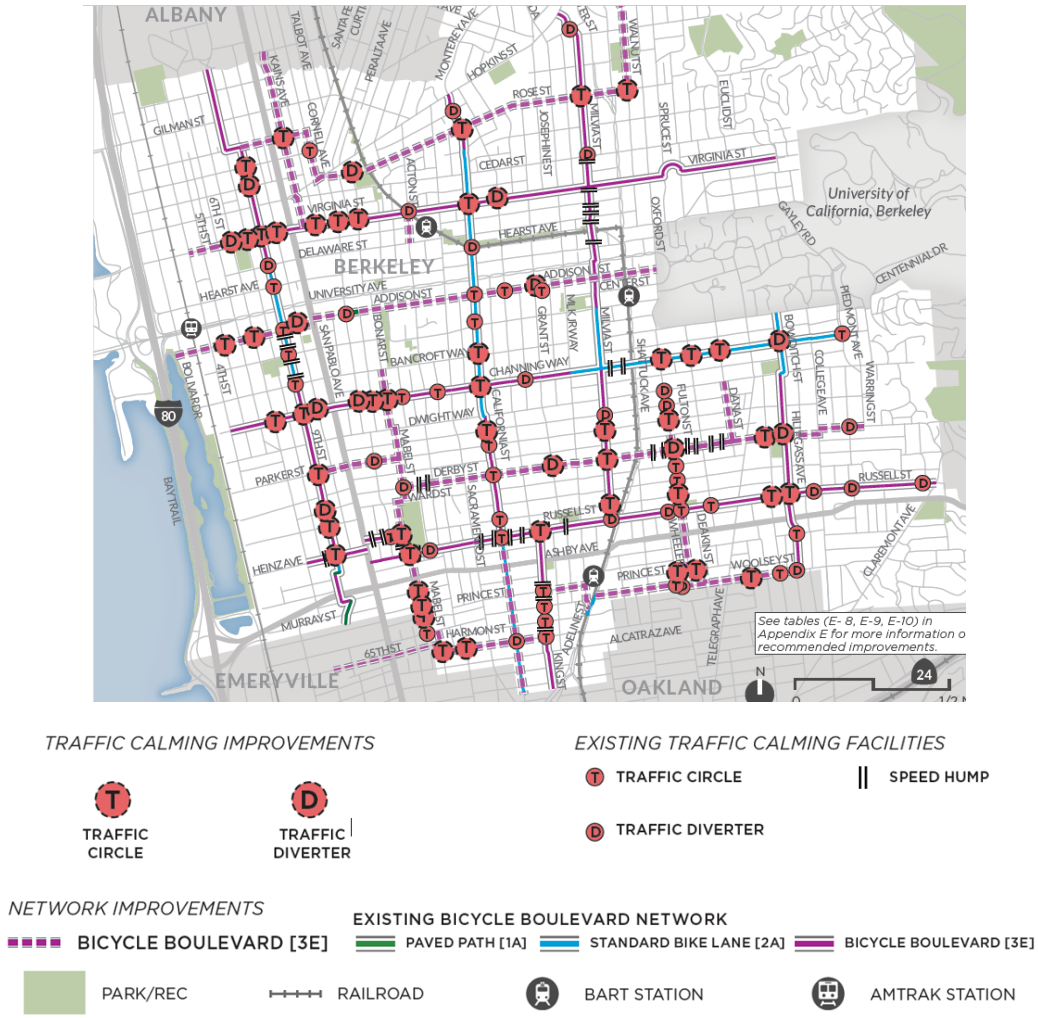
As envisioned in the 1977 Master Plan, bicycles continue to be an important mode of transportation in Berkeley. In 1990, about 5% of employed Berkeley residents commuted by bicycle and many residents use bicycles for recreation and personal tasks. Students also use bikes to get to school. In 2000, the City Council adopted the Berkeley Bicycle Plan and Bicycle Boulevard Design Tools and Guidelines. The Bicycle Plan is incorporated by reference into the General Plan.

The goal of the Bike Plan is to improve safety for cyclists of all ages, with the larger aim of encouraging a clean, carbon-free mode of transportation and reducing pollution as well as traffic accidents in Berkeley. The traffic circles are designed to slow traffic and improve safety for occupants of cars, cyclists, and pedestrians. Traffic calming will encourage more people to ride bikes and allow their children to bike on their own. An increase in the use of bikes instead of cars will reduce carbon and enhance resiliency by encouraging an energy-independent mode of transportation.

This Plan proposes several new Bicycle Boulevards and enhancements to the existing seven Bicycle Boulevards to provide greater traffic calming and convenience for through bicycle travel. Bicycle Boulevards make riding a bicycle feel safer and more intuitive for all ages and abilities.

Figure 5-15 below, excerpted from the Plan, shows recommended conceptual traffic calming improvements along the Bicycle Boulevard network. Diverters are recommended to direct vehicles off the Bicycle Boulevards and onto larger roadways, decreasing vehicle speeding and cut-through traffic. New recommended diverter locations were generally selected to provide at least one diversion point between each major street along the Bicycle Boulevard network. Recommended traffic circle and diverter locations in this Plan may be changed based on traffic studies, public process, and neighborhood feedback. The City may pilot these locations with temporary installations to understand their traffic impacts before making them permanent.

Recommended Low-Stress Bike Boulevard
Traffic Calming Improvements
(*Excerpt from Figure 5-15*)



The Plan includes *Project Recommendation Tables and Prioritization* in Appendix E. Following is an excerpt from Table E-2:

Summary of Intersection Recommendations
(Excerpt from Table E-2)

Recommended Project Type	Count	Cost Estimate
Protected Intersection	10	$6,500,000
Traffic Circles	42	$2,100,000
Traffic Diverters	13	$650,000

Traffic Circle projects are prioritized within each corridor. Tier 1 projects, including traffic circles, are planned to be implemented in the short-term by 2025, Tier 2 in the medium-term (between 2025 and 2035), and Tier 3 in the long-term (by 2035).

Future Traffic Circles - Tier 1 Projects:
Implementation planned by 2025
(Excerpt from Table E-8)

Corridor	Location	Cross St.	Est. Cost
Addison St	Addison St	7th St	$50,000
	Addison St	5th St	$50,000
Channing Wy	Channing Wy	7th St	$50,000
	Channing Wy	Browning St	$50,000
	9th St	Channing Wy	$50,000
	Bonar St	Channing Wy	$50,000
	California St	Channing Wy	$50,000
	Channing Wy	Dana St	$50,000
	Channing Wy	Ellsworth St	$50,000
	Channing Wy	Fulton St	$50,000
Fulton/Bancroft/Hearst	Fulton St	Parker St	$50,000
	Fulton St	Oregon St	$50,000
	Prince St	Wheeler St	$50,000
	Prince St	Deakin St	$50,000
Hillegass Ave	Hillegass Ave	Russell St	$50,000
Milvia St	Milvia St	Oregon St	$50,000
	Milvia St	Parker St	$50,000
Russell St	Russell	King St	$50,000
Total cost			***$900,000***

Overall, traffic calming via traffic circles should be very beneficial to bike riders and traffic circles are strongly supported by the Bicycle Plan. The plan notes that traffic circles can be landscaped but must be maintained to preserve sightlines.

- **Revised Traffic Calming Policy**

This policy states:

> NOW THEREFORE, BE IT RESOLVED by the Council of the City of Berkeley that the City shall adopt the Traffic Calming Policy – 2009 as set forth in Exhibit A to:
>
> > 1) establish an annual cycle with specific timelines and procedures for submitting, qualifying and processing traffic calming requests, regardless of where the request originates; 2) conduct data collection and traffic calming studies for requests with a validated problem and that meet specified criteria; 3) generate an annual, updated prioritized list of traffic calming capital improvement projects; and 4) allocate available funds for implementation of projects according to their priority.

This Resolution and implementing policy justify and support the creation of calming measures, including traffic circles. (See Resolution No. 64,732-NS and the Policy)

- **"Vision Zero" Policy**

  This initiative is a road traffic safety project intended to create a roadway transportation system with no fatalities or serious injuries involving road traffic. The Vision Zero approach has been effective in other cities. Berkeley plans to develop a policy and implementation strategy, as well as to identify funding sources. Traffic circles are a component

  The *Considerations for Effective Implementation* include the following (*excerpt from p. 19*):

  Engineering

  Horizontal traffic-calming elements: chicanes, curb extensions, traffic circles, ped refuge islands

  - Carefully select design vehicle
  - Consider use of mountable features for very large vehicles

  The Policy notes that a particular benefit of traffic circles is that vehicles do not need to cut directly in front of oncoming traffic to make a left turn. This tends to eliminate broadside hits, which are often the deadliest intersection crashes.

  Traffic calming via traffic circles conforms to the Vision Zero goals. Possible view obstruction by vegetation will need to be considered.

- **Resilience Strategy**

  The Resilience Strategy emphasizes building community resilience by building stronger connections:

  Between neighbors (including those in adjacent cities)

  Between public, private, nonprofit, and academic institutions;

  Between departments within the City government;

  Between Bay Area local and regional governments.

  Key goals relevant to traffic circles:

  #1 – Build a connected and prepared community;

  #3 Adopt to the changing climate;

  Suggestions for Berkeley citizens:

  In the spirit of connectedness, the Resilience Strategy is also an invitation for all residents and organizations to partner with the City government and other community leaders to build Berkeley's resilience together. Relevant items:

  - *Know your neighbors* -The City provides incentives, such as a free dumpster or a cache of emergency supplies for neighborhood groups that work together to prepare for disasters.
  - *Get involved***-** Join Climate Action efforts to advance Berkeley's Climate Action Plan.

  The Traffic Circle Policy conforms to the Resilience Strategy by building stronger connections between neighbors through neighborhood cooperation in caring for the traffic circles.

- **Streets and Open Space Improvement Plan**
  (Applies to downtown, but the general concepts are relevant city-wide)

  This Plan strongly supports the use of street trees for shading and stormwater control:

  Chapter 8 - Street Trees and Landscaping (here)

  - Policy 5.1, Planting Program & Priorities. Promote the installation of Downtown street trees to the extent possible, with the ambitious but attainable goal of 1000 Trees by 2020.
  - Policy 5.3, Tree Location. Use trees to shade and provide a canopy over sidewalks, and over bicycle and vehicle lanes to the extent possible,…[*emphasis added*]
  - Policy 5.4, Preparation & Installation. Trees and associated features should be installed in ways that promote the sustained health of the trees.

  Relevant provisions:

  c. …. Under this citywide program, abutting residents, agree to follow City procedures including watering the tree for at least three years; keeping the tree well clear of weeds and filled with soil or mulch; and to clean-up all leaf debris.

  f. Permeable materials should be used to maximize tree root access to water and oxygen….

  h. Street trees can be positioned and installed in ways that capture stormwater and filter pollutants in urban run-off (see also "Watershed Management & Green Infrastructure"). [*emphasis added*]

  Similar to several of the other city plans, the use of trees is promoted because of the multiple benefits provided. Permeable materials are encouraged to allow infiltration of stormwater. This infiltration reduces runoff and also provides water for the vegetation.

Recommended roles and responsibilities

- **Public Works Department**

  The functions of the Public Works Department include construction and maintenance of all streets, rights-of-way, etc. The Public Works Department will have oversight and approval responsibility for traffic circles including the construction, maintenance (in coordination with local community groups), vegetation.

  Suggested code provision: *Notwithstanding anything to the contrary in this Chapter, the City of Berkeley Engineering Division of the Department of Public Works, or its successor, may approve new Traffic Circles in the public right-of-way …as set forth in, and in compliance with, the Berkeley traffic calming policy*.

- **Traffic Circle Coordinator**

  The Coordinator is a Berkeley City Employee who coordinates the activities of the neighborhood traffic circle committees. The Coordinator functions as the liaison between the City and these groups. The Coordinator maintains the list of the groups and their members. The Coordinator also identifies abandoned traffic circles for the "flying squad" to address…..[expand]

- **Parks, Recreation & Waterfront Department (Urban Forestry Unit)**

  The Urban Forestry Unit plants and maintains street trees in the parkway (planting) strip between the curb and sidewalk. Upon request, the Urban Forestry Unit will assist local community groups in selecting trees and maintenance. Specifically, the Urban Forestry Unit will assist in trimming trees to ensure they maintain this Policy's specified distance above the curb of the traffic circle [8 ft] and above the adjacent roadway [14 feet].

- **Neighborhood Traffic Circle Committees**

  The committees are a group of friends and neighbors who have agreed to beautify their neighborhood by maintaining their local traffic circle. The Committees agree to the following:

  - Keep all plants in good health
  - Keep the traffic circle free of debris and grime
  - Adequately maintain the surface of the traffic circle

  (Adopted from Missoula, Mt. - here; this and other group requirements are addressed later)

- **Proposed Traffic Circle Flying Squad**

  This committee is a group of citizen volunteers available to plant and maintain "abandoned" traffic circles that do not have a local neighborhood group to support them. The Traffic Circle Coordinator identifies traffic circles for this group to address.

Needed changes to the Municipal Code

- BMC section 16.18.040 - **Exemptions from permit requirements** - Add traffic circles to this list. Otherwise, the requirements are onerous: public liability insurance, etc.
- BMC section 16.18.280 - **Care of drainage** – May need clarification to allow for or encourage the installation of permeable pavers or to facilitate green infrastructure (e.g., curbside infiltration into planters).
- *Other sections may also need modification*.

Other possible additions

1. **Local Traffic-Circle Committee requirements**
   - **Release and Waiver** [needed?]

     Every individual participating in a City of Berkeley Traffic-Circle committee shall sign a copy of this agreement form and fill out the volunteer release and waiver before any work on City property. The forms should be returned to the Traffic Circle Coordinator. (Adopted from Missoula, Mt. program- *here*)

     The individual listed below recognizes the inherent risks associated with participating in work in the Traffic-Circle program. The individual below shall indemnify and hold harmless the City of Berkeley, its officers, employees, agents and elected officials from and against any and all claims, suits, actions or liabilities of any nature, including but not limited to injury or death of any person, loss or damage to property, or any other basis whatsoever, arising out of the use of city property or participation in this program resulting from any act or omission, or thing done, permitted, or suffered to be done, by the organization/individual, except claims, suits or actions occasioned by the sole negligence of the City of Berkeley.

   - **Maintenance Agreement** (to be signed by participants) [*is this needed*?]

     Keep all plants in good health

     Keep the traffic circle free of debris and grime

     Adequately maintain the surface

   - **Suggested Traffic Circle Participant Safety Rules and Guidelines**

     Each participant in maintaining traffic circle circles should consider the following Safety Guidelines (adopted from Missoula, Mt. - here)

     1. Work only during daylight hours and in appropriate weather.
     2. Wear protective clothing including work gloves, sturdy shoes, long-sleeved shirts, and pants to prevent injury from sharp objects, insect stings, and sunburn.
     3. Don't overexert yourself. Take breaks and drink plenty of water [beer is acceptable]
     4. Do not wear headsets or engage in horseplay or other conduct which could divert your attention from hazards such as traffic or other dangerous situations.

5. Be aware of your surroundings to ensure your safety and the safety of others. Be especially careful if you are using tools.
6. Provide adequate supervision for participants under the age of 18.
7. If picking up litter, use caution in handling collected items. Do not try to pick up heavy, large, or hazardous materials. Notify Berkeley Public Works for management of those materials.
8. Consider the possibility of any participant's known allergies before working at the site.
9. Ensure that power tools are only used by fully trained volunteers 18 years or older and use proper safety equipment (latex gloves, work gloves, eye protection, hard hats, face shields, safety vests, respirators, closed-toed shoes) when working with tools.

2. **Grandfathering current traffic circles** – Most traffic circles were built by the City or supported through grants with approved designs. Should traffic circles built by the City or with City approval be allowed to continue as currently constructed even though they may not conform completely to the provisions of the new Policy? Perhaps they would be processed through the exception provision described below.

3. **Flexibility (exceptions)** – In some cases, a traffic circle may have unique characteristics, and separate design parameters should be applied. For example, if a traffic circle has a 4-way stop or adjacent speed bumps, then it may be appropriate to relax the sight-line requirements. Proposed exceptions would be submitted via the City's traffic circle coordinator (or direct to Public Works or Traffic?)

4. **Policy for permitting and funding of <u>new</u> traffic circles** – Develop procedures for permitting and funding new in-street facilities.

   - Permit process
   - City approval
   - City support and oversight
   - Funding

   The Bicycle Plan has identified locations and costs for additional traffic circles and other traffic calming devices (see previous discussion).

5. **Environmental equity** – Consider whether traffic circle benefits are equitably distributed in the City. Should certain areas be prioritized for new circles, bulb-outs, or parklets, especially areas with few street trees*? [Need to compare current map of traffic circles with Bicycle Plan map, if possible].*

6. **Research** – Assess various traffic circle related issues such as 1) the policy for having boulders in the traffic circles; 2) compile available research on traffic circle safety issues versus intersections with no traffic circles; 3) visibility and risk comparison of tree trunk vs. the traffic control sign.

7. **Signage wording** – Evaluate options for signage (location, size, wording). Various people have noted that the "Yield" wording makes some drivers believe that they do not stop when stop signs are present. <u>Do we need stop signs for traffic circles? Or maybe a dual sign: "Stop & Yield."</u>

8. **Homeless encampments** – Consider a possible approach to address future homeless encampments in traffic circles? A specific ban may be necessary because of safety concerns.

9. **Harmonization with plantings (greenways and median strips)** – Assess coordination and compatibility with Ohlone Park and other greenways. Also, evaluate possible coordination with plantings in the curbside median strips and roadway center strips in the vicinity of the traffic circles.

Expanded Berkeley Partners for Parks (BPFP) Proposal to City of Berkeley Regarding Strengthening Volunteer Engagement by Establish a citywide *Adopt a Spot* program

See February 25, 2016, Summary Proposal Letter from BPFP and Berkeley Climate Action Coalition

We recommend that the City of Berkeley develop a citywide "Adopt a Spot" pilot program as a community-based public lands (i.e., open space and Rights of Way (ROW)) stewardship initiative that would be modeled after the City of Oakland's "Adopt a Spot" program. An "Adopt a Spot," or similarly named program, could be set up through City of Berkeley's (City) Public Works Department and/or Parks and Recreation Department. The Adopt a Spot program would help bridge maintenance funding gaps for parks, community gardens, medians, roundabouts, etc. by establishing community partnerships between the City of Berkeley staff and organizations such as Berkeley Partners for Parks and the Climate Action Coalition and engaging residents in volunteering actions related to implementing the Climate Action Plan.

To appropriately incentivize community participation in public lands stewardship and to fund small-improvement and deferred maintenance projects, we also request that the City establish a public infrastructure mini-grants program. This would be similar to the successful Parks Mini-grants Program that the City operated between 1995 and 2000. The mini-grants program would explicitly include other "green" infrastructure such as community gardens, medians, and roundabouts. We advise that the proposed mini-grants program, like its predecessor, require matching funds and/or in-kind support.

We intend to bring this proposal to the City Council but wish to discuss it with staff before we do.

Background

Why a community-based public lands stewardship program (on the model of Adopt a Spot):
Berkeley has a long history in cultivating participatory democracy and of supporting community activism as an ethos. And our city is uniquely blessed with many civic minded and engaged residents. Unfortunately, there are no formal programs or mechanisms for the City of Berkeley and its staff to harness that energy in the community and to engage its citizenry in partnerships and community-based stewardship efforts; indeed residents often experience a lack of receptiveness to volunteer initiatives by staff, particularly over the past 5 to 7 years. This proposal will enable a positive, formalized context for City/resident/organization partnerships that will help the participatory democracy philosophy to flourish and incentivize community contributions to civic improvements and reduce certain maintenance needs over time through long term resident-driven infrastructure stewardship activities.

We have researched several existing community-based streetscape "stewardship" programs sponsored by municipal public works departments. Of these, the one that appears to have among the best track record and the longest lifetime (30 years) as a model for the Berkeley's Program would be the City of Oakland's "Adopt a Spot" program. It should be noted that Oakland's Adopt a Spot was also a template for the comparable programs at the Cities of Livermore and Richmond. Oakland's program is a community-based partnership of the City of Oakland's Public Works Department with its residents that enables the latter to maintain specific public spaces by committing to regularly cleaning and beautifying them for no less than one year. For details of Oakland's program see:

www.Oaklandadoptaspot.org. All "spots" in this program must be City of Oakland properties or Rights of Way (ROWs). It is recommended that City of Berkeley (City) use the Oakland *Adopt a Spot* as its model, including adapting its liability and application forms, since the Oakland edition of Adopt a Spot is successful and has been "field tested" for almost 30 years. It is proposed that the City adapt the Oakland program to 1) provide the basis to foster regular street/neighborhood litter clean-ups; 2) promote a greater sense of place and belonging to neighborhoods through constructive streetscape stewardship activities; and 3) addressing current and primary interests of the City in supporting Municipal Regional Permit (MRP) implementation and NPDES compliance in a manner that involves the local community. Residents would be trained to perform before and after visual assessments of randomly selected transects within the trash challenged neighborhoods targeted for clean-ups.

The City of Berkley's *Adopt a Spot* should be designed to provide a community-building emphasis, since it would engage neighbors to undertake minor maintenance and improvement projects. This would serve to increase their awareness of and capacity to care for their local infrastructure, providing incentives for neighbors to participate and stay committed to community stewardship activities.

The following section, which analyzes Oakland's *Adopt a Spot* Program and focuses on those components that would be especially relevant to adapting it for City of Berkeley, was derived from interviews with Mike Perlmutter, Coordinator of Oakland's program.

Analysis of Oakland's "Adopt a Spot:" The City of Oakland (Oakland) has pioneered an *Adopt a Spot* program (Program) that allows individuals, neighborhood groups, civic organizations and businesses to play a direct and long term role in cleaning, greening and beautifying parks, creeks, shorelines, storm drains, streets, trails, medians and other public spaces. Volunteers involved in it have adopted hundreds of sites around Oakland. Oakland's Public Works Dept. supports these efforts with tool lending, debris collection services and technical assistance. Residents can perform the following tasks as part of this program:

- Planting/pruning/weeding in parks and ROWs and along creeks (with pre-approval from Public Works staff)
- Beautification of litter containers and utility boxes with mosaics and murals (similar to Earth Island's existing "60 Boxes" program with the City of Berkeley)
- Litter pick-up
- Graffiti removal
- Keeping storm drains free of debris ("Adopt a Drain")

A subset of Oakland's Adopt a Spot program, *Adopt a Drain*, allows for individuals to adopt specific storm drain inlets (SDIs) that are shown on a web-based/IMS map (modified Google map) –which displays streets and properties along with both drains that are "Available" and ones that are "adopted" for maintenance purposes: http://adoptadrainoakland.com/. Residents or groups can adopt "available" drains by completing an online form which automatically signs them up for the available drains.

The City of Oakland has 4 full time employees who are affiliated with the program and two part-time trainees. They are deployed by subject area. That is, projects and staff are divided between 3 subject areas: 1) parks; 2) creeks/storm drains; and 3) streets. One staff person is tasked to work with

residents in carrying out projects in each subject; they get to know the volunteers and projects within their respective subject areas, which increase the quality and specificity of support of residents who are involved in the program.

Oakland tracks hours spent by volunteers through its Volunteer Hours Tracking form: https://docs.google.com/forms/d/1UphXhPsn0BtVsquilDYnZDfcirO7xvt1sUnh-OoCj28/viewform?c=0&w=1&usp=send_form. This allows the City of Oakland to have both documentation of the Program's benefits and maintenance of an ongoing database of the extent and type of resident involvement and it provides it with evidence of the in-kind matches of incentives for grant applications that the City is regularly submitting to support the program.

***Incentives and Rewards*:** How does Oakland reward and attract volunteers? There are not many formal incentives, other than the annual "Volunteer appreciation party," which also provides volunteers a forum to meet and to get to know other civic-minded citizens. As Mike Perlmutter, its coordinator (and who is also a resident of Berkeley) said, the "City relies on citizens' desire to do good for the community;" another motivation, he noted, is that it "provides them with the means to rectify problems, or to get access to City resources and tools." The City of Berkeley should consider including recognition parties as well, but also permanent signage for active projects or adopted neighborhoods to acknowledge volunteer efforts; T-shirts with the name of program or group; and trainings of volunteers.

Public Outreach: Oakland does very little targeted outreach, except for its two annual cleanups. It does coordinate with Keep Oakland Beautiful and the Oakland Parks Coalition who actively promote and support volunteer efforts at Oakland's parks, creeks, streets and other public places. Materials and forms are also being translated into Spanish and Chinese. Oakland has a MOU with Keep Oakland Beautiful, which establishes the roles and responsibilities of each organization, e.g. in relation to promotion of the Program, specific projects and the volunteer appreciation party. They also provide financial resources/grants to groups who want to do projects. Oakland Parks Coalition functions as a watchdog and advocacy group for the parks, which provides a source of projects and advocacy for greater capacity. The City of Berkeley should identify its own affiliates, which can include BPFP and the Berkley Climate Action Coalition.

To obtain a more detailed analysis of Oakland's Adopt a Spot Program, John Steere spoke with its manager, Mike Perlmutter. Notes from this interview follow.

***Interview with Mike Perlmutter*,** Environmental Stewardship Team Supervisor, Environmental Services Division of the City of Oakland Public Works Department.

1) *Are there different forms, requirements or protocols depending on whether a group adopts a creek, a SDI, blocks, parks, etc.?*

   No, there is one form, the "Oakland Adopt a Spot Request and Agreement" (Attachment 1) that covers all activities, though if a resident wants to adopt a drain, the process is streamlined further through an automated on-line form.

2) *Do you allow individuals or just groups to adopt a spot? What about businesses? That is, does the City of Oakland have criteria for who can and cannot adopt a city feature?*

Individuals, as well as groups, can adopt spots. There are about 200 groups and 300 individuals who have adopted spots around Oakland. In addition, about 800 drains have been adopted (by 600 residents, some of whom have adopted multiple drains). The City staff reviews forms submitted for projects (non-drain components) of the program, whereas the drain forms are automated and thus permit automatic adoption of the drains without staff vetting).

3) *What are the Adopt a Spot's criteria for deciding what spots qualify?*

Spots have to be ROWs or public spaces owned by City (but not other agencies.). The City partners with the Alameda County PWD in its "Adopt a Creek" projects. The City also works with East Bay Regional Park District (EBRPD) and with East Bay MUD in implementing the Program. Other criteria includes analysis of whether a project is safe and appropriate, e.g. of medians. Trash pick-ups don't involve much vetting, just how to go about. If pavement or vegetation is proposed for cutting in a park, then the PWD staff reaches out to the Park Staff to see if it corresponds to their goals; sometimes Parks or PWD staff functions as liaisons.

4) *What Open Source software do you use to administer the Program? And what GIS program do you use for mapping them and monitoring/updating them (e.g. volunteer work days; tasks accomplished etc.).*

Adopt a Drain was developed by *Open Oakland*, which is affiliated with **Code for America**. If Berkeley wishes to have its own Adopt a Drain program, then we should work with Code for America to offer a fellowship to conduct a hackathon to define a specific program for the City – or we could use the code on the Oakland website (Burlington VT has an identical program). The interactive GIS/mapping utility of Oakland's Program is only available at this time for its "Adopt a Drain" component. A geospatial database is being developed for tracking projects in the overall Program. Public service or infrastructure requests are already logged on a GIS database called "Cityworks," and the City is now developing one now for the *Adopt a Spot* program. The City already keeps track of hours of all individuals and what is being accomplished, (on a google form), but not geo-spatially.

5) *How do you receive project proposals (written/verbal/email)?*

Project proposals and other forms are faxed, delivered, and emailed. The City would like to go toward use of the Adopt a Drain model which is automated and thus more efficient and allows staff to avoid the substantial effort involved in evaluating, filing and scanning forms.

6) *What standards do you apply for helping to ensure public safety; how do you mollify/accommodate the City's legal counsel in terms of liability issues?*

The *Volunteer Waiver form* (Attachment 2) was vetted by Oakland 's legal counsel and it sets forth 3 parameters for volunteers to concur with: 1) acknowledges risk associated with a project; 2) they won't hold the City responsible for injury; and 3) they have read and agree with volunteer

guidelines. Program has been in operation for almost 30 years, but there are few if any lawsuits arising from it.

7) *What incentives do you provide volunteer workers and by what means do you promote Adopt a Spot to attract more community members to participate?*

Incentives: Volunteer appreciation party once a year – as forum for them to get together. Oakland doesn't provide much more but relies on citizens' desire to do good for community and motivation to rectify problems or to get access to City resources and tools. Past incentives: the City of Oakland is thinking of resuming signage to acknowledge volunteers; T-shirts; Mike Perlmutter would also like to see a training program to learn skills.

Oakland sponsors two clean-ups per year: Creek to Bay Day (in September– on the same day as Coastal Cleanup); and Earth Day (April), both of which they promote extensively throughout the city. The websites for these City-sponsored events are, respectively, www.oaklandcreektobay.org and www.oaklandearthday.org.

Public Outreach: The City of Oakland does very little targeted outreach, except for its two annual cleanups. Keep Oakland Beautiful and the Oakland Parks Coalition actively promote and support volunteer efforts in Oakland's parks, creeks, streets and other public places. Materials and forms are also being translated into Spanish and Chinese. The City has an MOU with Keep Oakland Beautiful, which establishes the roles and responsibilities of each organization, e.g., in relation to promotion of the Program, specific projects and the volunteer appreciation party. They also provide financial resources/grants to groups who want to do projects. Oakland Parks Coalition functions as a watchdog and advocacy group for the parks, which provides a source of projects and advocacy for greater capacity.

8) *How do you communicate with and monitor the work of Adopt a Spot groups and projects?*

Projects are divided between 3 subject areas: 1) parks; 2) creeks/storm drains; and 3) streets and there are staff identified with each these subjects; staff that are tasked to the subjects get to know volunteers and the projects within their respective subject areas. They meet with volunteers in certain neighborhoods or creeks to facilitate alliances and greater understanding of the context of the individual projects.

The City's PWD also sponsors the annual Oakland "Earth Expo" which is an annual environmental fair that highlights nature, community, transportation, environmental, health, and urban design theme. It provides an excellent forum for businesses and environmental and community groups to network and to develop partnerships. This year's expo was held on April 8.

9) *What is the annual budget for the Program? What are the roles of the 6 staff members (4 FTE; 2 PT) who work with you to administer/implement it? Does the City receive grant funding to help administer or promote it?*

Annual O&M Budget: $100,000;
Labor Budget: 4 FTE; 2 PT (to the PWD) ; Program Analyst 3: $80-85,000 (Mike's position) Analyst 2: $65,000 (other FTEs); trainee - $15-25/hour (PT staff).

The City does receive several hundred thousand dollars in grants annually to help support the Program's implementation.

10) What do you feel are the essential ingredients and requirements needed by any municipality to set up their own Adopt a Spot Program?

(He responded with the following summary of requirements)

- Willingness by municipality to work with volunteers and role of volunteers vs. that of staff (union concerns for example).
- Need to have staff in place to support and coordinate the volunteers and to track their projects.
- Good tracking, training and communication system
- Documentation for project parameters, how to report, how to get questions answered; Maintain record of hours and tasks accomplished
- Vision and priorities that are communicated to volunteers

11) How long has the Program been in effect? Are there any administrative procedures and parameters you would change if you were to start it over again?

It has been in operation for about 30 years. We would change several things if I were to start over again. These include:

- Better signage and recognition and training.
- Better communication through list-serves (events; training/jobs, developments)
- Having an outreach plan to communities
- Seeking to automate more of the forms that are currently filled out.
- More informational resources (where to get paint, compost, mosaic artists, etc. Oakland Parks Coalition has a good model for resources.)

It is recommended that the City of Berkley formally adopt an "Adopt a Spot" Program and incorporate the preceding guidance in developing its own version.

Available exhibits: *From City of Oakland*

1. Adopt a Spot Agreement
2. Volunteer Waiver and Release of Liability
3. Volunteer Guidelines
4. Volunteer Tool Request
5. One Time Cleanup Proposal
6. Graffiti Abatement Authorization

City of Berkeley Traffic Circle Policy Task Force
Operation and Maintenance Subcommittee
Draft "Best Practices" Guidelines, August 9, 2019

Traffic Circle Operation and Maintenance Guidelines and Best Practices

1. **Traffic Circle Adoption Agreement**

The Community Common Space Stewardship Program (Stewardship Program), established by Council resolution will develop an on-line application and simple stewardship volunteer job description for use in recruiting community volunteers to adopt and maintain neighborhood traffic circles. Good examples of volunteer agreements can be found on websites of the City of Vancouver, British Columbia; Missoula, Montana; and Oakland, CA. Most volunteer agreements have information about what a volunteer is agreeing to, a disclaimer, and/or a volunteer release and waiver, and an application form to gather volunteer contact and location information. The City Attorney will need to determine if a disclaimer and volunteer release and waiver are necessary for the City's Program.

A few examples of Stewardship Program handouts and forms:

"Understand your Responsibility as a Traffic Circle Volunteer
By applying, a volunteer agrees to:

- Care year-round for the traffic circle vegetation including weeding, pruning, and other routine maintenance.
- Be cautious and visible to traffic while in or near the traffic circle.
- Follow the Operation and Maintenance Guidelines and Best Practices and ensure your traffic circle vegetation honors the sightline requirements.
- Adopt a traffic circle for at least a one-year term."

"Read Disclaimer and Sign Volunteer Release and Waiver
Every individual participating in the City of Berkeley Stewardship Program shall sign a copy of the agreement form and fill out a volunteer release and waiver prior to any work in the public right of way.

Disclaimer:
By signing, I acknowledge that the City of Berkeley is not responsible for any loss, damage, or injury that may result to me from caring for the traffic circle.

Release and Waiver:
As a Community Common Space Stewardship Volunteer, I indemnify and hold harmless the City of Berkeley, its officers, employees, agents and elected officials from and against any and all claims, suits, actions or liabilities of any nature, including but not limited to injury or death of any person, loss or damage to property, or any other basis whatsoever, arising out of the use of city property or participation in this Stewardship Program resulting from any act or omission, or thing done, permitted, or suffered to be done, by

the organization/individual, except claims, suits or actions occasioned by the sole negligence of the City of Berkeley.

Date: _____
By_____

City Indemnification for Volunteers:
For its part, the City of Berkeley agrees to indemnify and defend any traffic circle volunteer who is in good standing with the program against legal or other challenges arising from their volunteer activities. This section will apply if a third party legally challenges or otherwise threatens a circle volunteer for undertaking work in conformance with these policies and the stewardship program.

Date: _____
By_____"

Traffic Circle Adoption Sign
A "best practice" is to install signs in each traffic circle noting if the traffic circle has been adopted or is available for adoption and who to contact for more information.

2. **Safe Gardening on City Streets**

Traffic circles are located in the middle of neighborhood intersections. Many are very busy with vehicular, bicycle and pedestrian traffic. It is critical that all volunteers keep themselves safe while they are tending to their traffic circle.

Some tips:

Be Visible
- Garden during daylight hours and when the weather provides clear visibility.
- Garden when traffic is light rather than during peak traffic hours.
- The program does not require volunteers to dress in any specific manner or clothing when working in a traffic circle. The following suggestions are made for attire: wear protective clothing, including work gloves and sturdy shoes.
- You may wear a safety vest or other bright clothing when working in the traffic circle

Be Alert
- Pay special attention for passing bicycles and motor vehicles, especially when working in traffic.
- Avoid standing in the street. Stand in the traffic circle or along the curb edge at all times.

Be Responsible
- Don't overexert yourself. Take breaks.

- Do not wear headsets or engage in conduct which could divert your attention from hazards such as traffic or other dangerous situations.
- It is not recommended that children help with traffic circle gardens.
- Keep tools and gardening supplies off of the street.
- When using a hose for watering, make sure it lies flat on the pavement. Use of small traffic cones at curbside and the edge of the traffic circle is suggested to alert cyclists and drivers that a hose is present. It is best to water with a hose at times of the day/days of the week when the least passing traffic is expected.

3. Managing Sightlines and Vegetation

Per the City of Berkeley Traffic Circle Policy ("Policy"), all vegetation in traffic circles should be planted with consideration of vegetation and tree's mature shape and size and sightline requirements to provide an unobstructed view by a typical driver entering and exiting the traffic circle intersection. Visual sightlines, as described in the Policy, guide plant selection and maintenance. "Unobstructed view" is defined, and does not preclude trees. Low vegetation is to be maintained at a maximum height of 2.5 feet from the top of the traffic circle curb. Mature tree canopies must be pruned and trimmed up to and maintained at 7-8 feet height above the traffic circle planter curb. Limbs that extend beyond the curb should be trimmed to 14 feet above the adjacent road surface within the road right-of-way. Single tree trunks that are less than 20" in width, as measured 4 feet above the ground, do not require any additional traffic calming devices. Low branches on young trees and/or flower stalks extending above the 2.5 feet maximum height shall be permitted as long as the total visual obstruction above 2.5 feet is no more than 20" across the circle.

The Stewardship Program can provide planting palettes that will help volunteers select from a variety of suggested plant lists for native oaks and compatible understory plants for bees and pollinators, butterfly habitat, and native wildflowers. These planting palettes have suggested plants whose growth patterns will more naturally conform to the sightline guidelines and will require less pruning, watering and use of pesticides.

4. Traffic Circle Maintenance Guide

Landscaped neighborhood traffic circles in Berkeley add beauty and help slow down traffic to make Berkeley a safer place to live. In order to maintain their function and beauty, the traffic circles do have to be cared for. Maintenance of the vegetation can be simple and just takes a little time and effort. Each traffic circle has different plant material, but the maintenance practices remain relatively the same. Here is a basic guide to help with the maintenance of plantings and trees that are found in your neighborhood traffic circles throughout the city. Remember, all traffic circle vegetation and maintenance should allow motorists to easily see pedestrians in the crosswalk.

The planting and maintenance approach for each circle can be guided by your vision, if it meets the policy sightline requirements. For example, if a primary goal is to provide habitat for birds and insects, such as butterflies and native bees, ongoing maintenance should be adjusted away from traditional, more disruptive methods towards more natural, less invasive ones, as many insects need undisturbed ground to reproduce and thrive. For those who wish to garden with a focus on habitat, the following general guidelines are offered:

- Use mostly native, regionally appropriate, drought-tolerant plants
- Garden by hand – avoid pesticides and herbicides as well as the use of mechanical trimmers ("weed whackers"), blowers and mowers
- Tend circle vegetation regularly – it's especially useful to remove unwanted plants before they go to seed
- Cluster plants in masses of 3-5 or more, as space allows – pollinators prefer to feed from a mass of the same flower species; similarly, if a goal is to support butterflies and their reproduction, include clusters of larval (caterpillar) host plants
- Minimize raking of leaves – some insects spend the winter ("overwinter") in leaf litter and could be harmed if raked and thrown out; moreover, leaves left on the ground can help suppress weed growth, retain moisture, and supply valuable nutrients to the soil
- Minimize wood chip mulch and do not use black plastic sheeting or any synthetic pellets or mulch – most native bees are solitary and many nest in the ground. Wood chip mulch and other barriers can inadvertently keep these bees from accessing the soil
- Allow some dry stalks to remain – some native bees are cavity nesters and lay their eggs in the stems of dead stalks
- Allow some seed heads to remain – avoid "dead heading" all spent flowers, leave some in place as they can be an important source of food for birds during the fall and winter
- Water as needed in early years, less as time goes on – many drought-tolerant native plants will require regular watering the first year or two while they establish. After that, water is typically less needed. Consult gardening manuals for the specific needs of your plants.
- The presence of chewed or damaged leaves is often a sign of success for the habitat gardener. Butterfly caterpillars must eat enough of their specific host plant before going into chrysalis, to later emerge as a butterfly. Some butterfly caterpillars even roll themselves up in a protective leaf while they feed and prepare to pupate. Gentle native leafcutter bees can make near-circular cuts in nearby leaves to then use when constructing individual protective "cocoons" for each egg laid.

<u>Bay Area Gardening</u>

In the Bay Area's Mediterranean climate, the planting season begins in late autumn, rather than spring, as it does in many other parts of the country. The primary growing

season of our locally adapted plants is during the rainy season of winter and spring. Many plants slow or stop growth in the dry summer months.

Periodic Maintenance Guidelines

- When you remove dead growth do not leave debris in the street.
- Prune perennials and deciduous shrubs as needed. Shrubs that go dormant can be pruned before buds turn green in the spring.
- Traffic circle volunteers can decide to use mulch or not. If using mulch, replenish it to a depth of at least 2-3 inches. This will help keep the soil moist and help prevent weeds from germinating. The City of Berkeley Maintenance Yard routinely provides free mulch for residents to help themselves. Another alternative is to simply allow leaf litter to accumulate.
- Pruning trees – remove larger dead or broken branches that can safely be reached from the ground. If possible, it is best to prune before the tree leafs out. Prune sucker growth from the base or trunk of the tree. Tree branches should be pruned at the branch collar in order for the tree to seal off the wound correctly.
- Watering – The amount of water needed by each plant is dependent upon the type of plant and the weather (i.e. temperature and rainfall). In Berkeley, from June through October, you may periodically water deeply (the soil should be moist to 6 inches or greater for most plants and deeper for trees). Continue watering throughout the fall as needed until the winter rains begin.
- Frequent removal of unwanted plants will result in less effort later in the season. Prevent unwanted plants from going to seed to reduce or avoid next year's crop
- Natural composting methods, mulching and top-dressing your soil with compost or natural fertilizer is the best way to develop strong, vigorous plants. Fall is a good time to do this.
- For serious pest issues, consult the Stewardship Program Community Engagement Coordinator and/or your local nursery for advice.

5. Garbage and Debris Removal

- Routine "housekeeping" of your traffic circle will show neighbors that the circle is being cared for.
- As appropriate, notify your neighbors that you are the city-sponsored person who has adopted the traffic circle. Ask them to let you know if they see any problems or hazards.
- For any ongoing serious garbage and debris dumping issues, consult the Stewardship Program Community Engagement Coordinator who can work with you and other City departments to find a solution.

6. Decoration, boulders, bird feeders, miscellaneous

- Temporary structures and ornaments are allowed if they:
  - Meet visual sightline clearances;
  - Can be easily removed;

  - Don’t interfere with access or visibility;
  - Are generally non-sectarian (e.g. holiday lights but no overt religious symbol).
- Solar lights or lights powered by small battery packs are allowed if they are low wattage and do not create glare.
- Bird feeders are not encouraged in traffic circles due to rodents and other pest attraction.
- Small basins or sumps may be used to provide water for birds and insects if they are shallow and meet sight guidelines.

7. Coordinating with Public Works and the Community Common Space Stewardship Program

The Stewardship Program Community Engagement Coordinator will report to Public Works and be responsible for coordinating with all existing traffic circle volunteers, recruiting new volunteers, act as a liaison between community volunteers and City staff, coordinate between Public Works, Parks and Recreation and Planning Departments as well as third party utilities, develop and maintain an on-line tool for tracking circle compliance, and administer the Stewardship Program.

The Coordinator is also responsible for developing an annual budget, hosting annual work days, and providing assistance with technical issues, a plant discount program, free mulch delivery, tool and safety equipment lending library coordination, and a green infrastructure mini-grants program with matching funds and/or in-kind support.

The Coordinator and City leaders should explore consolidating all resources and responsibilities for traffic calming measures (traffic circles, bulb-outs, traffic diverter replacement/conversions and parklets) as well as supporting the Berkeley Bicycle and Pedestrian Plans under the Community Common space Stewardship Program.

04

AMENDING CHAPTER 19.32 OF THE BERKELEY MUNICIPAL CODE TO REQUIRE KITCHEN EXHAUST VENTILATION IN ALL RESIDENTIAL AND CONDOMINIUM UNITS UNDERGOING RENOVATIONS AND PRIOR TO EXECUTION OF A CONTRACT FOR SALE OR CLOSE OF ESCROW

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That Berkeley Municipal Code Section 19.32 is hereby amended to read as follows:

Chapter 19.32

BERKELEY MECHANICAL CODE

Sections:

19.32.040 Residential Kitchen Exhaust Ventilation.
Chapter 4 of the 2019 California Mechanical Code is adopted in its entirety subject to the modifications thereto which are set forth below.

403.7.3.0 General Requirements for Residential Kitchen Exhaust Ventilation.
Residential kitchen exhaust ventilation systems installed in compliance with this Section pursuant to a building permit issued on or after the effective date of this Section shall comply with all applicable requirements of the Berkeley Mechanical Code.

403.7.3.1 Existing Multifamily and Condominium Buildings.
Residential kitchen exhaust ventilation systems are required in any multifamily residential or condominium unit subject to an addition, alteration or repair for which a building permit is issued on or after the effective date of this Section and the valuation for the work exceeds $10,000.

403.7.4 Sale of Existing Buildings.
The requirement to install kitchen exhaust ventilation systems in ~~multifamily or condominium~~ buildings shall apply prior to entering into a contract of sale, or prior to the close of escrow when an escrow agreement has been executed in connection with a sale as follows:

1. in any residential or condominium building or structure, applicable to all units therein; or
2. in an individual condominium unit.

Section 2. The effective date of this amendment shall be January 1, 2020, or the effective adoption date of the 2019 California Building Standards Code, whichever is sooner.

Section 3. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of the Maudelle Shirek Building, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.

Comparison Chart of Proposed Residential Kitchen Exhaust Ventilation Ordinance

	State Law	Existing Berkeley Law			CM Harrison's Proposed Amendments		
		New Construction	Renovations	On sale	New Construction	Renovations	On Sale
Single-family homes	Kitchen Exhaust Ventilation required *- 2016 CA Mechanical Code Section 403.7 Minimum Exhaust Rates*	Required	Exempt	Exempt	Required	Exempt	Required
Multi-family residential rentals	Required	Required	Exempt	Exempt	Required	Required when work exceeds $10,000 for any individual unit	Required
Condos	Required	Required	Exempt	Exempt	Required	Required when work exceeds $10,000 for any individual unit	Required

Kate Harrison
Councilmember District 4

ACTION CALENDAR
September 24, 2019

To: Honorable Mayor and Members of the City Council

From: Councilmember Harrison

Subject: Amending Chapter 19.32 of the Berkeley Municipal Code to Require Kitchen Exhaust Ventilation in all Residential and Condominium Units Undergoing Renovations and Prior to Execution of a Contract for Sale or Close of Escrow

RECOMMENDATION

1. Adopt an ordinance amending Berkeley Municipal Code (BMC) 19.32 to require kitchen exhaust ventilation in residential and condominium units undergoing renovations and in all existing residential buildings prior to execution of a contract for sale or close of escrow.

2. Refer to the City Manager to draft a resolution establishing appropriate local climatic, geological or topographical findings as required by the California Building Standards Commission.

POLICY COMMITTEE TRACK

Facilities, Infrastructure, Transportation, Environment & Sustainability Policy Committee

BACKGROUND

The California Building Standards Code, or Title 24 of the California Code of Regulations, specifies the standards for buildings and other structures in California. Title 24 is intended to protect public health, safety, and general welfare building occupants, and is updated at the state level and adopted by local jurisdictions every three years. Municipalities are permitted to make local amendments to the Building Standards Code[1] as deemed necessary for general welfare, as long as they are submitted to the California Building Standards Commission with the necessary findings. The ideal time to

[1] "Local Amendments to Building Standards—Ordinances," California Building Standards Commission, https://www.dgs.ca.gov/BSC/Codes/Local-Jurisdictions-Code-Ordinances.

2180 Milvia Street, Berkeley, CA 94704 ● Tel: (510) 981-7140 ● TDD: (510) 981-6903 ● Fax: (510) 981-6903 E-Mail: KHarrison@cityofberkeley.info

update local buildings codes is before the next code cycle. Berkeley will adopt the 2019 code on January 1, 2020.

Cooktops contribute to toxic indoor air quality. A 2013 Lawrence Berkeley National Laboratory (LBNL) study found that "60 percent of homes in the state that cook at least once a week with a gas stove" produce toxic levels of nitrogen dioxide, formaldehyde and carbon monoxide exceeding federal standards for outdoor air quality.[2] A prior LBNL study found that the "aggregate health consequences of poor indoor air quality…are as significant as those from all traffic accidents or infectious diseases in the United States."[3] Even electric cooktops generate toxic particulate matter. Unfortunately, the Environmental Protection Agency does not currently regulate indoor air quality.

Researchers in the United States are Australia have begun to link the use of natural gas stoves with asthma attacks and associated hospitalizations.[4] Asthma and its relationship to natural gas and other forms of cooking present profound questions about equity.[5] Researchers from the University of California, Berkeley, and the University of California, San Francisco found that the highest asthma rates in Berkeley and Oakland tracked areas that were redlined pursuant to racist housing policies.[6] This issue is compounded by state and regional efforts to boost home efficiency to trap air indoors.

The state currently requires kitchen exhaust ventilation systems in all new residential construction, but not for existing building renovations, nor at time of sale. Ventilation systems are designed to remove combustion and other cooktop byproducts from the residential unit to preserve air quality.

---

[2] "Pollution in the Home: Kitchens Can Produce Hazardous Levels of Indoor Pollutants," Julie Chao, Lawrence Berkeley National Laboratory, July 23, 2013, https://newscenter.lbl.gov/2013/07/23/kitchens-can-produce-hazardous-levels-of-indoor-pollutants/.

[3] *Id.*

[4] Amy Mitchell-Whittington, "Cooking with gas, damp housing may cause childhood asthma: study," Brisbane Times, April 15, 2018, https://www.brisbanetimes.com.au/national/queensland/cooking-with-gas-damp-housing-may-cause-childhood-asthma-study-20180415-p4z9pz.html; Nadia N. Hansel et al., "A Longitudinal Study of Indoor Nitrogen Dioxide Levels and Respiratory Symptoms in Inner-City Children with Asthma," Environmental Health Perspectives., October 2008, https://pdfs.semanticscholar.org/e099/2f996c97844af8fbcf86b4824fbb7b1cf092.pdf.

[5] A 2017 California Public Health Department report found that asthma is 30% more prevalent for African Americans and 40% more prevalent for Asian Americans and Native Americans than whites. Gay/lesbian and bisexual men and women have 40-60% higher asthma prevalence than straight men and women. Hispanics and Asians born in the U.S. are more than twice as likely to have current or lifetime asthma than Hispanics and Asians born outside of the U.S. *See* California Department of Health, "Asthma Prevalence in California: A Surveillance Report," January 2017, https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHIB/CPE/CDPH%20Document%20Library/Asthma_Surveillance_in_CA_Report_2017.pdf.

[6] UC Berkeley Public Health, "Historically redlined communities face higher asthma rates" May 2019, https://sph.berkeley.edu/historically-redlined-communities-face-higher-asthma-rates.

This ordinance proposes requiring kitchen exhaust ventilation systems in any multifamily residential or condominium units subject to an addition, alteration or repair for which a building permit is issued and the valuation for the work exceeds $10,000. The requirement would also apply prior to execution of a contract for sale or close of escrow.

The transfer of property currently triggers various state and local building code requirements. For example, at time of sale the state health and safety code requires that, gas water heaters are seismically braced, anchored, or strapped.[7] Other local ordinances related to environment, such as the BMC 19.81: the Building Energy Saving Ordinance, require energy efficiency reports prior to time of sale. The intention of Section 403.7.4 is to ensure that all buildings and units therein that are sold in Berkeley include exhaust ventilation systems, therefore enhancing air quality and public safety across the existing building stock.

FINANCIAL IMPLICATIONS

Staff time to submit ordinance to the Building Standards Commission and to draft findings resolution. In addition, building inspector staff time will be necessary to compliance with new provisions.

ENVIRONMENTAL SUSTAINABILITY

Mandating kitchen exhaust ventilation systems in residential units undergoing renovation and all units at sale will enhance indoor air quality.

CONTACT PERSON

Councilmember Kate Harrison, Council District 4, (510) 981-7140

ATTACHMENTS

1: Ordinance

[7] Health and Safety Code § 18031.7, https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=18031.7.&lawCode=HSC

AMENDING CHAPTER 19.32 OF THE BERKELEY MUNICIPAL CODE TO REQUIRE KITCHEN EXHAUST VENTILATION IN ALL RESIDENTIAL AND CONDOMINIUM UNITS UNDERGOING RENOVATIONS AND PRIOR TO EXECUTION OF A CONTRACT FOR SALE OR CLOSE OF ESCROW

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That Berkeley Municipal Code Section 19.32 is hereby amended to read as follows:

Chapter 19.32

BERKELEY MECHANICAL CODE

Sections:

19.32.040 Residential Kitchen Exhaust Ventilation.
Chapter 4 of the 2019 California Mechanical Code is adopted in its entirety subject to the modifications thereto which are set forth below.

403.7.3.0 General Requirements for Residential Kitchen Exhaust Ventilation.
Residential kitchen exhaust ventilation systems installed in compliance with this Section pursuant to a building permit issued on or after the effective date of this Section shall comply with all applicable requirements of the Berkeley Mechanical Code.

403.7.3.1 Existing Multifamily and Condominium Buildings.
Residential kitchen exhaust ventilation systems are required in any multifamily residential or condominium unit subject to an addition, alteration or repair for which a building permit is issued on or after the effective date of this Section and the valuation for the work exceeds $10,000.

403.7.4 Sale of Existing Buildings.
The requirement to install kitchen exhaust ventilation systems in multifamily or condominium buildings shall apply prior to entering into a contract of sale, or prior to the close of escrow when an escrow agreement has been executed in connection with a sale as follows:

1. in any residential or condominium building or structure, applicable to all units therein; or
2. in an individual condominium unit.

Section 2. The effective date of this amendment shall be January 1, 2020, or the effective adoption date of the 2019 California Building Standards Code, whichever is sooner.

Section 3. Copies of this Ordinance shall be posted for two days prior to adoption in the display case located near the walkway in front of the Maudelle Shirek Building, 2134 Martin Luther King Jr. Way. Within 15 days of adoption, copies of this Ordinance shall be filed at each branch of the Berkeley Public Library and the title shall be published in a newspaper of general circulation.

CITY COUNCILMEMBER
RIGEL ROBINSON
DISTRICT 7

05

CONSENT CALENDAR
November 19, 2018

To: Honorable Mayor and Members of the City Council

From: Councilmembers Rigel Robinson and Ben Bartlett

Subject: Referral: Electric Moped Ride-Share Franchise Agreement

RECOMMENDATION

Refer to the City Manager to establish a process for the creation of franchise agreements for ride-share motorized bicycles, and establish a franchise agreement with ride-share motorized bicycle provider Revel in coordination with the City of Oakland.

BACKGROUND

In the spirit of encouraging residents to choose alternative, sustainable modes of transportation, major cities across the United States are pioneering motorized bicycle sharing programs that allow users to reserve and unlock a moped for short-term use.

In 2018, a company called Revel launched a ride-share electric moped pilot program in New York City. Following initial success, Revel recently expanded the New York program from 68 to 1,000 vehicles and to an area of about 20 square miles, in addition to launching a new fleet in Washington, D.C.

Under California Vehicle Code Section 406, Revel mopeds are legally classified as motorized bicycles: two-wheeled or three-wheeled devices "having fully operative pedals for propulsion by human power, or having no pedals if powered solely by electrical energy, and an automatic transmission and a motor that produces less than 4 gross brake horsepower and is capable of propelling the device at a maximum speed of not more than 30 miles per hour on level ground."[1]

Section 12804.9 of the Vehicle Code provides that motorized bicycles or mopeds fall under the M2 vehicle classification, which typically requires an M2 endorsement in addition to a Class A, B, or C driver's license. The Vehicle Code makes an exemption for short-term moped rentals of 48 hours or less, requiring only a valid driver's license for such rides.[2] However, short-term rental moped operators must still follow all other regulations that apply to non-rental operators, including wearing an approved safety helmet when riding on public roads.[3]

---

[1] https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=406.&lawCode=VEH

[2] https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=12804.9.&lawCode=VEH

[3] https://www.kctlegal.com/blog/2017/june/california-scooter-and-moped-driving-laws/

As an added safety precaution, Revel's Rental Agreement includes requirements that are more stringent than the Vehicle Code's provisions. In addition to holding a valid driver's license, Revel requires users to be 21 or older and pass a DMV background check to verify that they have a safe driving record. Each motorized bicycle has a DMV-issued license plate, comes with two USDOT certified helmets stored in the back compartment, and travels up to a maximum speed of 30 miles per hour. The mopeds are parked and driven on the street, not the sidewalk, and park compactly at a rate of seven bicycles per one car-sized space. Revel also provides free training courses to registered users.

Electric mopeds present an alternative to lighter, smaller e-scooters, which have prompted accessibility concerns due to riders parking them on sidewalks. Unlike e-scooters, electric mopeds cannot be operated or parked on the sidewalk and come equipped with helmets. Additionally, the license plate requirement creates a greater degree of accountability, and allows for identification and sanction of users who violate traffic laws.

In addition to providing a zero-emissions transit option, Revel is priced affordably, with rides costing a base price of $1 plus 25 cents per minute. They offer an equitable access rider program with a 40 percent discount for underserved communities, and only employ full-time, benefited workers.

Entering into a franchise agreement with Revel would not violate the terms of the City's exclusivity agreement with Bay Area Motivate for bicycle ride-share. Revel mopeds classify as motorized bicycles under the Vehicle Code, which is separately defined from electric-assisted or human-powered bicycles. Section 1.13 of the Motivate agreement explicitly states that "'Bicycle' shall not include motorized vehicles, including scooters or mopeds. For the avoidance of doubt, electric assisted bicycles constitute Bicycles and do not constitute motorized vehicles."[4]

In 2017, the City of Oakland and the City of Berkeley worked together to establish a franchise agreement for Gig Car Share, the country's first multi-jurisdictional car sharing program. A similar multi-jurisdictional moped sharing program could further expand accessibility and transit options for residents.

Currently, Revel is working with the Oakland Department of Transportation and has submitted an application to the Berkeley Transportation Division seeking a franchise agreement. Following the model of the Gig Car Share program, staff should work with their counterparts in Oakland to implement consistent regulations across the two jurisdictions. Both Revel's application and the proposed revision to Oakland's Free Floating Zone Permit and Master Residential Parking Permit Terms and Conditions to accommodate electric mopeds are attached.

[4] https://sanjose.granicus.com/MetaViewer.php?view_id=&event_id=1475&meta_id=544265

Staff should also establish a process by which other electric moped rideshare providers may apply for a franchise agreement.

FINANCIAL IMPLICATIONS
Staff time to develop a franchise agreement and revise the Free-Floating Parking Permit to accommodate ride-share motorized bicycle parking.

ENVIRONMENTAL SUSTAINABILITY
Transportation is the biggest source of carbon emissions in California and makes up 60 percent of emissions in the City of Berkeley.[5] In order to meet our statewide and citywide climate goals, governments must find a way to actively seek out and encourage the use of greener transportation options.

Smaller vehicle ride-sharing services, such as Revel, can be part of the solution by providing more sustainable micro-mobility options. Around 35 percent of car rides in the United States are trips of 2 miles or less, and this percentage is even higher for urban areas.[6] According to Revel's 2018 Brooklyn Pilot Rider Feedback, 50 percent of riders report using Revel to replace taxis, Ubers, Lyfts, and personal vehicle trips. By providing zero-emission electric mopeds as an alternative to cars, the City of Berkeley can reduce transportation sector carbon emissions and reliance on gas-powered vehicles.

CONTACT PERSON
Councilmember Rigel Robinson, (510) 981-7170
Rachel Alper, Intern

Attachments:
1: Application by Revel to the Transportation Division
2: Draft City of Oakland Free Floating Zone Permit and Master Residential Parking Permit Terms and Conditions Revisions
3: Revel Informational Packet

[5] https://www.cityofberkeley.info/recordsonline/api/Document/AS1qYEO88qcY6Ips8nwbGgL4jGxxlSquza3ESIDOTS6DL2nWI1jPxxzLJVhyvQgYDIIKPuJDdT3oigVB31dHEfM%3D/
[6] https://slate.com/business/2019/08/revel-moped-scooters-nyc-washington.html

Department of Public Works
Transportation Division

Application for Qualification

One-Way Car Share Program

Please read the *Qualified Car Share Organization Terms and Conditions* for the One-Way Car Share Program before completing and submitting this application

Company Name:	Revel Transit, Inc.
Street Address:	68 3rd. Street
City, State, Zip:	Brooklyn, NY, 11231
Contact Name:	Daniella Henry
Contact Email:	Daniella.henry@gorevel.com
Contact Phone:	860-212-8088
Company Website:	www.gorevel.com
Berkeley Business License # (if already obtained):	

Please answer the following below.

Describe your company's organizational structure and names/ positions of the executive team. See Attached.
Does your organization currently operate membership-based car sharing and, if so, where? See Attached.
Does your organization currently operate one-way car sharing and, if so, where? See Attached.

Application for Qualification – One-way Car Share Program

Describe your organization's planned one-way car share operations in Berkeley as well as regionally. See Attached.	For office use only
What are or will be your membership requirements? See Attached.	For office use only
Describe the company's insurance coverage for each shared vehicle and for each member operating the vehicle during the period of use, including liability coverage, personal injury protection, uninsured/ underinsured motorist and collision/ comprehensive deductible. See Attached.	For office use only
Quantify your company's initial fleet size and how the vehicles will be geographically distributed to serve the City of Berkeley. See Attached.	For office use only
Describe how members use the company's reservation system and the devices (phone, computer, smart phone, etc.) that can be used to make or change a reservation. See Attached.	For office use only

Application for Qualification – One-way Car Share Program

Describe all of the ways that members can find one-way car share vehicles (phone, computer, smart phone, etc.). See Attached.	For office use only
Describe all of the methods by which members can access the company's rental vehicles (fobs, credit cards, smart phones, etc.) and the hours and days that vehicles are available See Attached.	For office use only
Describe how members pay for vehicle use and the rates you plan to charge. See Attached.	For office use only
Describe how your company's rental vehicles are tracked in real time. See Attached.	For office use only
Indicate when your company would be ready to launch one-way car share in Berkeley. See Attached.	For office use only
Submit photos or renderings of your company's branded vehicles with this application.	For office use only

Application for Qualification – One-way Car Share Program

By signing this form, I attest that the above statements are true and that I have the authority to sign on behalf of the company Revel Transit, Inc.. Furthermore, I attest that I have read and agree to the *Qualified Car Share Organization Terms and Conditions* for the One-Way Car Share Program.

_____

Signature and Date

For office use only

☐ *Qualified*

_____

_____

_____

☐ *Conditionally qualified:*

_____

_____

_____

☐ *More information required:*

_____

_____

_____

☐ *Denied*

_____

_____

_____

Signed by: _____ *Date:* _____

Print name: _____ *Position:* _____

REVEL APPLICATION FOR ONE-WAR CAR SHARE PROGRAM

September 17, 2019

Describe your company's organizational structure and names/positions of the executive team.

Founded in March 2018 in New York City, Revel is an all-electric member-based shared moped company. Revel provides and maintains a fleet of vehicles available to the public for point-to-point rides. All riders must be at least 21 years of age and hold a valid driver's license, Revel provides standard insurance coverage.

Revel fits into cities' transportation networks, as they exist today. Vehicles operate and park in the street and are equipped with license plates to ensure rider accountability. The system thrives in neighborhoods with limited transit options, lower rates of car ownership and those historically underserved by companies offering innovative mobility solutions. As cities are looking for ways to make transportation more accessible to residents, Revel provides a unique transportation option built to make getting around convenient, affordable and fun.

Revel's Vehicle

Revels are 100% emissions-free all electric vehicles.[1] Powered by a Lithium ion battery, Revel's innovative design features a side kickstand and auto turn off blinkers. The vehicle's weight is well distributed giving the rider better balance and command than is typical for comparable vehicle models. Each Revel is manufactured for one or two riders and comes with two USDOT-certified helmets stored in a helmet case on the vehicle at all times.

Two "dead space" locations

Brooklyn, New York 2019

Each Revel is "street legal", that is it has received a USDOT-issued Vehicle Identification Number and is registered and issued a license-plate through the applicable state Department of Motor Vehicles. Every Revel is covered by liability

insurance for each vehicle and for each member operating the vehicle during the period of use. Because the vehicle's motor does not have a displacement over 50 cubic centimeters, and does not exceed a maximum speed of 30mph, a motorcycle license is not required.

Additionally, as cities grapple with shrinking parking availability in the midst of rapid population grown, Revels are space efficient. Requiring no more than three feet of the curb they easily fit in "dead space" where other vehicles are too large to park. A curbside parking spot for one car could fit up to five Revels.

Revel Organization: See attached for Revel's executive team organizational chart.

- Key Contact to the City of Berkeley: Haley Rubinson, Director of Business Development
    - Revel's Director of Business Development develops and executes the company's expansion strategy to enter into new city markets. She manages stakeholder engagement, regulatory affairs, external affairs and partnerships across all Revel's partner cities.
- Project Manager for the City of Berkeley: Jonathan Brims, Director of New Markets
    - Revel's Director of New Markets spearheads our efforts to plan and execute the deployment of Revel solutions in new cities. He is accountable for all aspects of launching new markets, including recruiting and hiring the local management and operations teams; identifying local office/warehouse space; and procuring the tools and equipment necessary to support local operations.

Does your organization currently operate membership-based car sharing and, if so, where?

Founded in March 2018, Revel is a membership based all-electric moped sharing company. Potential members must be at least 21 years of age and hold a valid driver's license. Potential members must upload a photo of their driver's license, take a selfie and upload their debit or credit card information. Revel then screens every potential user's driving history for incidents such as excessive speeding violations and DUIs. Once a potential member successfully passes the screening process, they can access vehicles on the Revel app. Revel currently operates 1000 vehicles in New York City and 400 vehicles in Washington D.C.

Does your organization currently operate one-way car sharing and, if so, where?
Revel provides and maintains a fleet of vehicles available to members for point-to-point rides, including one-way trips. As mentioned above, Revel currently operates in New York City and Washington, D.C.

Describe your organization's planned one-way car share operations in Berkeley as well as regionally.

Revel will establish a physical presence within the City of Berkeley, hiring locally-based employees on the ground so we remain responsive to our customers, government and our communities. We plan to hire a Berkeley-based team to manage both day-to day operations as well as long-term planning in coordination with the management team reflected in the attached personnel chart. Regionally, if amenable to all relevant government stakeholders, we look forward to launching a similar operation in the City of

Oakland at the same time as Berkeley. Hiring a local team will be top priority and we are committed to hiring a Head of Operations and a Head of Public Affairs as well as a fleet management team in advance of the launch.

a) Responsibility of Management Team performing the work

- Head of Public Affairs, Berkeley - Oakland
    - **Experience required:** *10+ years of professional work experience in transportation, management consulting, political campaigns or similar fast-paced work setting * At least 5 years experience leading large teams *Experience working closely and communicating effectively with internal and external stakeholders in an ever-changing, rapid *growth environment with tight deadlines * Comfortable representing Revel in front of community boards and other stakeholder groups * Are capable of taking on responsibilities outside of your core role * Bring high energy and motivational leadership * Experience navigating city and state regulatory structures * You take your work seriously but not yourself.
    - **Responsible for:** *Be accountable for all aspects of public affairs, including community engagement, in the Berkeley area. Salary commensurate with experience.
- Head of Operations, Berkeley - Oakland
    - **Experience Required:** *10+ years of professional work experience in transportation, operations, logistics or similar fast-paced work setting * 5+ years experience managing large teams of varying experience levels * Quickly identify, troubleshoot and resolve problems * Excellent verbal and written communication skills, with experience reporting to senior company management * High energy and able to motivate and manage any personality type * Can articulate clearly and persuasively in positive or negative situations * Experience maintaining vehicles and/or a strong mechanical aptitude * Adaptable, decisive, and able to juggle competing priorities * Ability to work weekends and evenings * Relevant OSHA accreditation preferred * Experience working with Lithium Ion batteries preferred * You take your work seriously but not yourself.
    - **Responsible for:** *Lead team of warehouse and field Operations Managers whose teams are tasked with maintaining, cleaning and charging our Berkeley moped fleet * Oversee recruitment, hiring and training of Operations Managers and Associates * Coordinate with Launch team for pre-launch warehouse build out and fleet scale up * Accountable for the safety, quality, and availability of our vehicles * Accountable for lithium ion battery inventory, including storage and charging for entire Berkeley fleet * Ensure operations team continually analyzes, improves, and sets best practices for maintaining our fleet * Prioritize issues reported to our customer service team.
- Fleet Management Team:
    - Revel does not do gig economy. The company hires full-time employees and offers commensurate benefits. We are staffed 24/7, with operations

employees working shifts throughout the day and with live customer service representatives available at all times our vehicles are in service.
  - Fleet positions will include warehouse and fleet operations staff, including mechanics, battery swappers and safety leads.

b) Policies and Procedures that will be utilized to ensure safety and prompt service

- Safety is the number one priority at Revel. We have incorporated the following features, policies and procedures into our vehicle and operations. Further, we take a high touch approach to our business with operations, customer service, data/analytics and other functions performed in-house by Revel employees. This level of accountability allows us to stay attuned to our customers, as well as everyone else who interacts with our service so we can be immediately responsive should new safety or service issues arise.
  - Drivers must be at least 21 years old with a valid license and safe driving record; before registration is complete Revel performs DMV background checks to verify riders' information. Users must also submit a selfie to verify they are the license-holders.
  - Available in-app and on our website, riders are given information (through text, video, infographics) on how to safely and responsibly operate and park. Additionally, each vehicle has prominently placed stickers with printed information on how to ride and park; use the throttle; reminders on fastening helmets; and key 'Rules of the 'Road'.
  - As part of our Rental agreement, users must accept the terms of our 'Rules of the Ride' (attached) which are aimed at safe operation of our vehicle and obeying applicable traffic and parking laws. Failure to do so may result in fines and suspension or termination of a rider's Membership.
  - Two USDOT certified helmets equipped with eye protection shields are stored in each Revel at all times. Riders must wear helmets, per Revel's Rental Agreement.
  - As motor vehicles, Revel's travel in traffic lanes, park curbside and have safety equipment consistent with or exceeding state DMV and insurance board standards.
  - Speed throttled at 30mph to keep up with traffic, license plates ensure accountability.
  - Revel offers free in-person lessons to existing and potential riders 7 days a week.
  - Immediate multi-lingual (currently English and Spanish) customer support from Revel employees is available during operating hours.
  - Revel has field technicians and mechanics working 24/7 so there is always an employee ready to respond to any issue at any time. It is also Revel's policy to engage with regulators, law enforcement and other key city officials in any city we operate. All will have a direct cell phone number and email address for a locally-based senior management employee to contact at any time, day or night if needed.

c) Plan of how Revel will provide services

- Revel will provide an initial fleet of 500 electric motor scooters (Revels) titled

and registered with the California Department of Motor Vehicles by December 1, 2019. All Revels in the Berkeley fleet will be:

- Zero-emission
- Powered by a Lithium ion battery
- Equipped with a kickstand
- Equipped with automatic shut-off turning signals
- Equipped with a helmet case containing two USDOT certified helmets
- Equipped with a speed governor that ensures the vehicle will not travel in excess of 30 mph on level ground
- Equipped with geo-fencing technology

- Like in New York and Washington D.C., Revel will maintain operating hours of 5am to midnight to start but will consider extending operating hours once the city is used to the service and demand permits. Revel will provide all signage, supplies and equipment necessary to operate in the program areas. Revel will secure an adequate facility within the City of Berkeley for the purpose of Revel operations.
- Revel will hire a Head of Operations and Head of Public Affairs as well as a fleet operations team tasked with maintaining the vehicles at maximum capacity, including maintenance and charging. Customer support and data needs will be managed by our New York-based team, who will be in constant contact with the Berkeley-based operations team. We will secure a location in the Berkeley area which will house all our operations in advance of the launch date.
- Like our other programs, Berkeley riders will download the Revel app to sign up for the vehicle sharing service. After uploading a license and a 'selfie', Revel will ensure that the potential user has a responsible driving record, e.g. no prior DUI violations or excessive speeding tickets. After determining that the potential user meets the Revel safety standard, the user can unlock any vehicle, unlock and access either of two USDOT-certified helmets (a Revel is manufactured to accommodate two riders) that are stored in the Revel helmet case at all times. In short, riders use the Revel app to find a nearby Revel, reserve it, ride where they need to go, and park it in a legal parking spot when done. The cost per ride will be $1 to unlock, .25/minute to ride, .10/minute to park. We are also committed to equitable riding that is accessible to all residents and will offer the Revel Access program, which gives a 40 percent discount for riders on any form of government assistance, to qualifying Berkeley riders. This is consistent with the current pricing of our existing fleet.
- Revels are licensed vehicles and therefore travel in traffic lanes, adhere to all rules of the road, including parking regulations, and have DMV safety equipment. While Revels are "street-legal", their speed is throttled at 30mph and no motorcycle license is required. Each Revel has an alarm system that is activated if the Revel is moved when locked, along with a rocking back wheel mechanism.

d) Regional Plan

What are or will be your membership requirements

- Revel members must:
  - be 21 years of age or older

- have a valid driver's license
- upload a "selfie" for the driving record screening
- have a responsible driving record, e.g. no prior DUI violations or excessive speeding tickets
- agree and adhere to our user agreement including
  - adhere to all rules of the road
  - follow parking regulations
  - wear a helmet at all times
  - passenger must be 18 years of age or older

Describe the company's insurance coverage for each shared vehicle and for each member operating the vehicle during the period of use, including liability coverage, personal injury protection, uninsured/underinsured motorist and collision/comprehensive deductible.

Every Revel is covered by liability insurance for each vehicle and for each member operating the vehicle during the period of use. Every Revel is covered by general liability insurance up to a million and up to $50,000 for each member operating a Revel. Every Revel is covered by liability insurance for each vehicle and for each member operating the vehicle during the period of use.

Commercial General Liability:

- Each occurrence $1,000,000
- Damage to rented premises $50,000
- Medical expenses $5,000
- Personal & adv injury 1,000,000
- General aggregate $2,000,000
- Products $2,000,000

Company: Y-Risk

- Address: 29 Mill St, Unionville, CT 06085
- Phone Number: 860-559-4099 (cell)
- Point of Contact: Bernie Horovitz
- Email Address: bernieh@yrisk.com
- Services Provided: Partner & CEO of Y-Risk (insurance provider)

Quantify you company's initial fleet size and how the vehicles will be geographically distributed to serve the City of Berkeley

Revel would initially deploy 500 mopeds in geographically distributed locations throughout Berkeley that would demonstratively serve Berkeley residents. As in other cities that we operate in, we would work together with the City of Berkeley to ensure that out operating area covered neighborhoods that have historically lacked transit access.

Describe how members use the company's reservation system and the devices (phone, computer, smart phone, etc.) that can be used to make or change a reservation.

During the sign-up process to use Revel, members are required to upload a photo of their driver's license and take a selfie to confirm the rider is the actual license holder. Then the system does a DMV record check to confirm the driver's license is not suspended; the holder is at least 21 years of age and that they have a safe driving history. A record of recent DUI's, speeding or multiple recent moving violations would trigger a flag to review or reject the registration. Once a rider's account is approved, accessing a Revel is as follows:

1. Open the Revel app on a smart phone to find a nearby vehicle.
2. Click to reserve (up to 15 minutes), once at vehicle click to start and unlock helmet case.
3. Take a free "safety minute" to fasten helmet, check mirrors, get comfortable.
4. Begin ride and park in a legal parking spot when you reach your destination.
5. Close out the ride with one click.

Describe all of the ways that members can find one-way car share vehicles (phone, computer, smart phone, etc.).

Members can access Revels through any phone that can access a phone app and that has a camera that can take a selfie. Members must put a debit or credit card on file to use the service. Revels are available to members every day between the hours of 5 a.m. and midnight.

Describe how members pay for vehicle use and the rates you plan to charge

Members pay through a debit or credit card registered to their Revel account. Revel has a flat $19 fee to run a background check on every rider's driving history. If approved, Revel users pay a $1 unlock fee and each additional minute is $0.25. Further, as another example of our commitment to the communities we serve, we are proud to offer our Revel Access program, providing a 40% discount for Revel users that qualify for affordable assistance programs, including SNAP benefits and affordable housing. Revel members that qualify for the Access program also receive a credit to their account to offset the $19 fee to run the background check.

Describe how your company's rental vehicles are tracked in real time

All of our vehicles contain a telematics device that communicates vehicle data to us, including but not limited to, vehicle location. Information is collected every second, and stored in our database.

Indicate when your company would be ready to launch one-way car share in Berkeley.

We would be ready to launch December 1.

Photos and renderings of your company's branded vehicles with this application.

Our team has the ability to execute.

Frank Reig
Co-Founder & CEO
VP, Energy & Industrials, GLG

Paul Suhey
Co-Founder & COO
Advanced Design Engineer, Exxon

Haley Rubinson
Director of Business Development
Managing Director, Tusk Ventures

Michael Pellegrino
Director of Operations
Director of Launch, Motivate

Joseph Nowicki
Director of Data Science & Analytics
VP, Data Science, Huge

Kristy Zoshak
Director of Community
Director of Marketing, Citi Bike

Lauren Vriens
NYC GM
Trade Commissioner Tech, Canadian Embassy

Theresa Magliano
NYC Senior Operations Manager
Head of Ops, Marley Spoon

Kaitlin Day
Customer Experience Manager
Manager, Customer Care at The Body Shop

Alexandria Borlabi
Finance Manager
Manager, Financial Planning at Flocabulary

Mikaela Jordan
Senior Data Analyst
– Data Analyst at RAPP

Daniella Henry
Policy and Gov't Affairs Manager
Senior Policy Advisor, NYC Mayor

Helen Stackhouse
Marketing & Design Manager
Creative Services Manager, Lyft

Jonathan Brims
New Market Launch Manager
Chief Strategy Officer, Immersive Robotics

By December 1, 2019

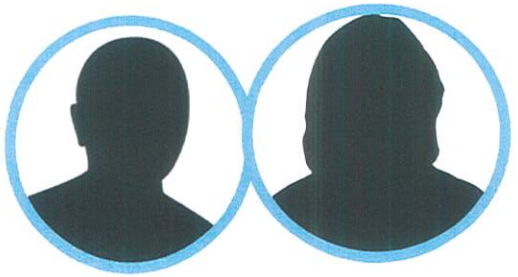
Berkeley Head of Operations

CEO of our critical markets

Berkeley Head of Public Affairs

Manage day-to day operations

Berkeley Fleet Operations Staff



Warehouse and field operations


reval
100% electric


revel
download. AND GO.
BOSCH


travel
download AND GO
BOSCH

CITY OF OAKLAND

City of Oakland

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) AND MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

Department of Transportation | Parking & Mobility

6/13/2019

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) and MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

CONTENTS

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) and MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

Car Sharing Staff Contact:
Michael Ford, Ph.D., C.P.P.
mford@oaklandca.gov
(510) 238-7670

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) and MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

DEFINITIONS

"Car sharing" is defined as a membership-based service, available to all qualified drivers in a community, which allows members to make motor vehicle trips with the use of a rented motor vehicle without a separate written requirement for each trip. (Oakland Municipal Code 10.44.030)

"Car sharing organization" is an organization that provides members with access to a minimum of 20 shared-use motor vehicles at geographically distributed locations with hourly, daily, and/or weekly rates (or fractions thereof) that include insurance. The Department of Transportation will maintain a list of the criteria necessary to become a "qualified" car sharing organization as well a list of qualified car sharing organizations entitled to apply for car sharing-related permits. (Oakland Municipal Code 10.44.030)

"Car sharing vehicle" is a motor vehicle made accessible by a car sharing organization for use by its members. Each car sharing organization shall display its identifying emblem on any car sharing vehicle using on-street spaces. (Oakland Municipal Code 10.44.030)

"Master Residential Parking Permit" (MRPP) refers to the permit that entitles car sharing vehicles with master residential parking permits to park in any residential permit parking area. (Oakland Municipal Code 10.44.030)

"Motor vehicle" means and includes automobile, truck, motorcycle or other motor driven form of transportation not in excess of 10,000 pounds in gross vehicle weight rating. (Oakland Municipal Code 10.44.030)

“Free-floating Zone Parking Permit" (FFZPP) is a permit that entitles members of a permitted car sharing organization to lawfully park car sharing vehicles in metered and unmetered spaces with duration limits of two hours or longer for up to 72 hours within a designated zone. (Oakland Municipal Code 10.71.030)

"Free-floating zone area" is the area agreed upon by the car sharing organization permit holder and the Department of Transportation, which bounds the permitted parking area for permit holder's car sharing vehicles within Oakland. (Oakland Municipal Code 10.71.030)

“Qualified Car Share Organization” (QCSO) is a car sharing organization that has been approved by the Department of Transportation for a Free-floating zone parking permit and/or Master residential parking permit.

"Parking permit" means a permit issued under this chapter which, when displayed upon a motor vehicle, as described herein, shall exempt said motor vehicle from parking time restrictions established pursuant to this chapter. (Oakland Municipal Code 10.44.030)

AUTHORITY

In ordinance 13301 C.M.S. and a companion resolution, 85459 C.M.S., the City Council delegated the authority to the Director of Transportation or a designee to approve the criteria and

administrative rules to issue the Free-Floating Zone Parking Permit (FFZPP) and the Master Residential Parking Permit (MRPP).

INTENT

The intent of the FFZPP is to facilitate car sharing within Oakland by establishing a permit that entitles a permitted car sharing vehicle to lawfully park in metered and unmetered spaces with duration limits of two hours or longer for up to 72 hours within a designated free-floating zone area. The concept for the FFZPP is based on the idea that Qualified Car Sharing Organizations should be able to pre-pay an estimate of meter fees for parking activity of point-to-point car sharing vehicles within a designated free-floating zone area. The estimate will be reconciled with actual parking activity after the term of the FFZPP.

The intent of the MRPP is to facilitate car sharing within Oakland by establishing a permit that entitles a permitted car sharing vehicle to lawfully park in all residential permit parking areas (RPP) areas for up to seventy-two (72) hours. The concept for the MRPP is based on the idea that car sharing vehicles should be entitled to the same on-street parking privileges of private automobiles. Because car sharing vehicles will rotate throughout the City, the vehicles will require access to all RPP areas.

FLEET DEPLOYMENT AND REBALANCING

In order to evenly distribute vehicles during initial deployment and ongoing operations, no more than two vehicles shall be parked by applicant as part of fleet "rebalancing" per block face or per 500 linear feet of curb, whichever is shorter. In addition, no more than one vehicle should be "rebalanced" to block faces where one or more of applicant's vehicles have already been parked by a customer. All rebalancing vehicle trips shall be clearly noted as such in vehicle trip and/or parking records provided to the City.

PRIVILEGES OF THE FREE-FLOATING ZONE PARKING PERMIT

The following privileges will be extended to the Permittee:

1. **Waiver of parking duration time limits for two hours or longer within an approved free-floating zone area**: The FFZPP allows Permitted car sharing vehicles to be parked up to 72 hours without the direct payment of a meter on the public right-of-way, in legal and not otherwise restricted parking spaces within an approved free-floating zone area. Restricted parking spaces include those with one or more regulating signs (such as Vanpool spaces), which cannot be used by Permittee during the specified restricted times shown on the sign(s), as well as meters with time limits of less than two hours. The Permittee should consult *Title 10 – Vehicles and Traffic, Oakland Municipal Code*, for a list of City parking restrictions.

2. **Ability of the Permittee to pre-pay estimated parking fees accrued by its car sharing vehicles in the approved free-floating zone area over the calendar year**: The FFZPP fee estimates the average parking meter fees that a single car sharing vehicle will accrue

over the course of one year (12 calendar months). With this Permit, the Permittee agrees to pay the fee published in the Master Fee Schedule at the beginning of the permit term as in lieu fee for its members' estimated parking meter usage. Members of the Permitted Qualified Car Sharing Organization should not pay meters with time limits of two hours or longer while parking FFZPP Permitted vehicles in an approved zone. It is expected that the Permittee will track actual parking events of members within the approved free-floating zone area and report parking activity to the City of Oakland on a monthly or quarterly basis. At the end of the Permit term, the City will invoice the Permittee for any parking fee shortfall, which will need to be paid within 30 days. If the Permittee has overpaid at the start of the Permit term, then either credit will be applied towards a renewal of permits or a reimbursement check will be sent to the Permittee.

Mopeds and motorcycles: Members parking mopeds or motorcycles in a metered zone but parked between metered spaces (at the parking "T" if one exists and/or in front of the parking meter if one exits), perpendicular to the curb in such a way as to not obstruct other vehicles from parking on either side, will not be required to reimburse the City for meter revenue. Members parking permitted mopeds or motorcyles in such a way that prevents another vehicle from parking in either adjacent space, or in a designated motorcycle parking area will be required to reimburse the City through the meter deposit. Permitee will educate its members about proper parking procedures.

3. **Ability to request signage**: The intention of the FFZPP is to designate an area within which it's possible to park without dedicating specific locations in the right of way for parking for car sharing vehicles. However, there are circumstances in which signage might be necessary to signify the right of Permitted car sharing vehicles to park in an approved area. In such circumstances, the Permittee can request that the City approve, install, and remove signage and sidewalk and/or street markings designating an approved home zone. The Permittee shall not install, paint, mark, or remove any signs, markings, or other demarcations on City property including on the street or the sidewalk. The City is not responsible for any damage caused to Permittee installed signage and/or markings.

4. **Option to request up to four (4) changes to the approved free-floating zone area during the term of the Permit**: The City of Oakland authorizes the Permittee to change the approved initial free-floating zone area up to four times during the term of the Permit. As long as the Permittee demonstrates to the City that changes to the free-floating zone area continue to meet the City's eligibility criteria (see Establishment of A Free-Floating Zone on page 8), the City will automatically approve the change to the free-floating zone area. If the changed free-floating zone area deviates from the criteria, the Permittee will need to submit the changes to the free-floating zone area for the City's approval before the Permittee can shift operations. Upon receipt of the changed free-floating zone area, the City will have ten (10) business days to respond to the changed boundary.

5. **Ability to park a moped or motorcycle within designated moped or motorcycle parking areas**: In addition to the privileges described above, FFZP permits obtained for mopeds or motorcycles grant members the ability to park them in designated motorcycle parking areas without direct payment of the meter fee when displaying their FFZP permits. Meter fees will be deducted from the FFZP deposit at the end of the permit year.

PRIVILEGES OF THE MASTER RESIDENTIAL PARKING PERMIT

The following privileges will be extended to the Permittee:

1. **Ability to park a permitted car sharing vehicle for longer than two (2) hours but no longer than seventy-two (72) hours in a residential permit parking area**: The Master Residential Parking Permit (MRPP) allows Permitted car sharing vehicles to be parked up to 72 hours in legal and not otherwise restricted parking spaces within an RPP area. Restricted parking spaces include those with one or more regulating signs (such as blue curb or disabled spaces), which cannot be used by Permittee during the specified restricted times shown on the sign(s). Permitted motorcycles or mopeds must park perpendicular to the curb, with one wheel touching the curb.

   The Permittee should consult *Title 10 – Vehicles and Traffic - Chapter 10.44 – Residential Permit Parking Program* of the Oakland Municipal Code, for a list of City parking restrictions in RPP areas.

2. **Ability to park a permitted car sharing vehicle in any residential permit parking areas in Oakland**: The MRPP allows Permitted car sharing vehicles to park in any RPP area regardless of the residential address of the car sharing member operating the vehicle. Please see attached map of RPP areas.

3. **Ability to request signage**: The intention of the MRPP is to allow car sharing vehicles to rotate within and among RPP areas without dedicating specific locations in the right of way for parking for car sharing vehicles. However, there are circumstances in which signage might be necessary to signify the right of Permitted car sharing vehicles to park in an approved area. In such circumstances, the Permittee can request that the City approve, install, and remove signage and sidewalk and/or street markings in RPP areas. The Permittee shall not install, paint, mark, or remove any signs, markings, or other demarcations on City property including on the street or the sidewalk. The City is not responsible for any damage caused to Permittee installed signage and/or markings.

ELIGIBLE PERMITTEES

An eligible applicant for a FFZPP and/or a MRPP must have obtained a certificate, which acknowledges that the buyer is a Qualified Car Sharing Organization in Oakland, or a letter that indicates that the buyer is a Conditionally Qualified Car Sharing Organization. The Qualified Car Share Organization must also possess a business license to operate in the City of Oakland.

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) and MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

PERMIT STRUCTURE

The FFZPP and MRPP shall have two components: a Fleet Permit granted to a Qualified Car Sharing Organization (Qualified CSO) and an individual Permit, which is granted to a specific vehicle. To purchase individual FFZPP and/or MRPP Permits, an applicant must file an application for a fleet permit with the City. A Qualified CSO is only entitled to receive one FFZPP Fleet Permit, one MRPP Fleet Permit, or one combined FFZPP/MRPP permit per year.

Permits are issued to individual Qualified Car Sharing Organizations, and they may not be traded or resold.

PERMIT TERM

The FFZPP shall last for one year on a fiscal year schedule. For instance, the 2018 Permit will be in effect from July 1, 2018, to June 30, 2019. A Qualified Car Sharing Organization who receives an FFZPP Fleet Permit after July in the calendar year will have the option to pro-rate individual Permit fees to the month purchased. The option to renew permits to Permittees in good standing will be presented in June of the Permit year.

The Fleet Master Residential Parking Permit (Fleet MRPP) shall last for one year on a fiscal year schedule. For instance, the 2018 Permit will be in effect from July 1, 2018, to June 30, 2019. Qualified Car Sharing Organizations (Qualified CSOs) who receive a Fleet MRPP after July in the calendar year will have the option to pro-rate individual Permit fees at the discount schedule extended to Residential Parking Permits. For instance, a Qualified CSO that purchases MRPPs in the first half of the calendar year will have to pay the full Permit fee, but will only pay 70% of the Permit fee if purchased in the second half of the calendar year. Please see the FY 16-17 Master Fee Schedule for more information about proration: http://www2.oaklandnet.com/Government/o/CityAdministration/d/BudgetOffice/OAK056277.

The option to renew permits to Permittees in good standing will be presented in June of the Permit year.

PERMIT CAP AND FLEET SIZE

Each Qualified Car Sharing Organization (Qualified CSO) applying for FFZPPs can be issued no more than one Fleet Permit, which entitles a fleet of car sharing vehicles owned by a Qualified Car Sharing Organization to purchase individual FFZPPs. This Fleet Permit will allow the City to batch process renewals, vehicle registrations, parking citations, etc., with Permittees. The City has not adopted a cap on the number of car sharing vehicles a QCSO can include in a Permitted Fleet, but in the Car Sharing Principles (85459 C.M.S.), the City limited the number of individual FFZPPs to 400 per year during the pilot program (the first two years that the FFZPP is available for sale). If this cap presents a hindrance to operators and the realization of the City's car sharing principles, the City will make adjustments to the cap.

An FFZPP Fleet Permit applicant, however, cannot purchase more individual FFZPPs than with which it can initiate service during that Permit term. For instance, if an applicant has 30 vehicles

ready to be used in a Free-Floating model, but it requests to purchase 40 individual FFZPPs, the additional 10 permits will be denied or revoked upon discovery that they are not in use.

A Fleet MRPP applicant cannot purchase more individual MRPPs than with which it can initiate service during that Permit term. For instance, if an applicant has 30 vehicles ready to be used in a Free-Floating model, but requests to purchase 40 individual MRPPs, the additional 10 permits will be denied or revoked upon discovery that they are not in use.

EVIDENCE OF PERMIT

A separate, individual, revocable FFZPP will be issued to each vehicle and/or license plate registered by the Permittee. As evidence of the Permit, the City of Oakland will issue 1) a paper Permit, and 2) a sticker to be affixed to the lower left corner of the rear bumper. The sticker will take the following form:

1. A mini-sticker that features the City's logo and the serial number of the Permit to be affixed to a larger bumper sticker provided by the Qualified Car Sharing Organization (Qualified CSO) of a similar size to the Residential Parking Permit sticker. The larger bumper sticker provided by the Qualified CSO must display the following information:

    a. A title indicating that the Permitted vehicle has special parking privileges

    b. The license plate number of the Permitted vehicle

    c. The date the Permit expires in that Permitted year

    d. Sufficient space for the City's mini sticker

    e. The zone designation of the Qualified CSO's approved Free-Floating Parking Zone.

If the FFZPP Permittee also purchases Master Residential Parking Permits (MRPPs) for its car sharing vehicles and chooses to affix City-issued mini-stickers to bumper stickers, the City will have opportunity to combine the mini-sticker for the FFZPP and the mini-sticker for the MRPP into one combined sticker.

Alternative arrangements for the sticker can be made at the request of the Qualified CSO. To inquire, please contact the car share contact.

ESTABLISHMENT OF A FREE-FLOATING ZONE AREA

It is the obligation of the Qualified Car Sharing Organization (Qualified CSO) to propose a Free-Floating Parking Zone ("free-floating zone area") in which to establish car sharing services as permitted by the FFZPP Fleet Permit. In the form of a map (file type to be specified by the City), the boundaries of the free-floating zone area will be submitted to the Department of Transportation as the initial step in the FFZPP Fleet Permit application process. Once the boundaries of the FFZPP have been approved (criteria outlined below), the Qualified CSO will submit information about its fleet of car sharing vehicles to the Parking Permits Supervisor in the Revenue Department.

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) and MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

As specified in the Municipal Code (*Title 10 – Vehicles and Traffic*), the Permittee is allowed up to four (4) changes of the free-floating zone area during the term of the Permit. Any proposed changes to the boundaries within the Permit term must be submitted to the Department of Transportation. As long as the Permittee demonstrates to the City that changes to the free-floating zone area continue to meet the City's eligibility criteria of the free-floating zone area boundary and that there are no outstanding claims by neighborhood associations and/or business groups, the City will automatically approve the change to the free-floating zone area. If the Permittee requires an exception from the eligibility criteria, then the Permittee will need to receive the City's approval of the changes before the Permittee can adjust operations or inform members of the new free-floating zone area.

The Permittee must notify its members about changes to the free-floating zone area at least three (3) days before the Permittee adjusts the zone.

If changes to the operating area proposed by Permittee will significantly restrict access of neighborhoods or neighborhood commercial districts to car sharing services, the Permittee must contact any City-recognized neighborhood organizations and/or business associations that are impacted and provide an opportunity for neighborhood input.

The City may provide a list and/or map of any and all parts of the free-floating zone area that the Permittee's permits will not be honored. The Permittee's permits will not be valid when the vehicle is parked in these areas and therefore must follow the same rules and regulations as any other motor vehicle.

Eligibility Criteria of Free-Floating Zone Area:

1. The free-floating zone area must be situated in part or completely within the City of Oakland's boundaries.

2. The free-floating zone area must be representative of Oakland's geographic and socioeconomic diversity. Within 3 (three) months of FFZP approval or renewal, at least 50 percent (50%) of the free-floating zone area must encompass all or parts of census tracts that have been designated Communities of Concern by the Metropolitan Transportation Commission (MTC). Details about the Communities of Concern designation can be found on the MTC's data portal: http://opendata.mtc.ca.gov/datasets?q=Policy . This criterion has been recommended to ensure that the City's programs are accessible to all residents.

3. If a street or block face would like to be included in a free-floating zone area, and the Permittee has denied the request of the appropriate neighborhood association and/or business group, the City reserves the right to withhold approval of subsequent changes to the free-floating zone area or renewal of the FFZPPs until the complaints with said groups have been resolved. The neighborhood association and/or business group must file notice of the request to be included in a given free-floating zone area with the City at least ten (10) business days before a specific date of a requested action. The City must

notify the affected Permittee within ten (10) business days that the City has received such a request from a neighborhood association and/or business group.

4. If, after six (6) months of inclusion in a free-floating zone area, neighborhood organizations and/or business groups within the zone protest the inclusion of a street or block face in a free-floating zone area, said groups can petition the City to have its street included on the black out list of streets with overriding parking restrictions. At least two-thirds (2/3) of residents on a given street or block face must sign a petition to remove said street and/or block face from a free-floating zone area. The City requires that the petitioning neighborhood and/or business group make an effort to negotiate the parking behavior directly with the Permittee operating in the free-floating zone area before bringing a petition to the Shared Mobility Coordinator or designee of the City Traffic Engineer.

5. The free-floating zone area is only valid and operational so long as the Permittee holds active FFZPPs granted by the City.

6. If the applicant's free-floating zone area does not include Communities of Concern (as designated by MTC) located in East Oakland (defined as areas to the east of 14th Avenue), then an Expansion Plan must be submitted to the Department of Transportation within three (3) months of the receipt or renewal of applicant's FZPP's. The Expansion Plan must include an expected timeline for expanding service to Communities of Concern in East Oakland, a map or maps depicting the proposed service area changes over time, and any actions that the applicant requests from the City in order to expand service.

OUTREACH TO NEIGHBORHOOD ASSOCIATIONS AND BUSINESS GROUPS

After the City grants the applicant an FFZPP, MRPP, or combined FFZPP-MRPP permit, the Permittee must request at least one (1) meeting with each neighborhood associations and/or business group located within the approved Free-Floating Parking Zone ("free-floating zone area") and/or Master Residential Parking Area Zone. When a free-floating zone area expands, the City expects the Permittee to request at least one (1) meeting with each neighborhood associations and/or business group located in the expanded free-floating zone area. Prior to designating or expanding a free-floating zone, the applicant must provide the City with a proposed list of neighborhood associations and business groups which it intends to meet with. The Department of Transportation must then approve the proposed list of meetings. After those meetings are completed, the applicant must provide the City with evidence of attendance (such as a sign-in sheet or meeting agenda) and meeting notes.

The Permittee shall not advertise or publish the City's participation in this Permit program prior to receiving the FFZPP, MRPP, or combined FFZPP-MRPP permit.

PERMIT FEES AND PAYMENT RECONCILIATION

The Permittee agrees to pay all permit and other appropriate fees to the City.

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) and MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

Free-Floating Parking Zone

The Free-Floating Parking Zone (FFZPP or "free-floating zone area") Permit fees are published in the Master Fee Schedule. For Fiscal Year 19-20, the cost of an FFZPP is $220 per car sharing vehicle per year. The intent of this fee is to create an upfront estimate of the expected meter usage of a car sharing vehicle within the approved free-floating zone area. Over the course of the term of the Permit, the Permittee will track actual parking meter usage per vehicle, report that usage to the City, and within 30 days after the last day of the permit term, i.e. July 31 of the following year, reconcile the actual dollar value of parking meter usage estimated pre-payment.

For motorcycles and mopeds, the FFZP is one-fifth the cost of the standard FFZP fee, to account for the smaller size of these vehicles and the small number of designated motorcycle parking areas. For fiscal Year 19-20, the motorcycle and moped FFZP is $44

In the case of overpayment, the City will credit the surcharge towards a Permit renewal or the Permittee will invoice the City for the balance by the last business day of the subsequent month. In the case of underpayment, the City will invoice the Permittee for the balance by the last business day of the subsequent month.

The Permit fees are based on the anticipated average number of vehicles in the Permittee's fleet in Oakland. For an FFZPP Permittee with a free-floating zone area that spans multiple municipalities including Oakland, the Permittee will calculate an estimate of the average number of vehicles which will park overnight, based on the share of parking meters, the share of parking spaces, or the share of the area within Oakland of the multi-jurisdiction free-floating zone area. Documentation of the estimate of the average number of vehicles should be included with the Permit application. These fees are to be assessed at the beginning of each Permit term and when additional vehicles are added to the fleet (no fees will be assessed for substitute vehicles).

Meter recovery fees are based on the actual time car sharing vehicles parked at meters. These fees are to be assessed for the fleet at the end of each quarter or Permit term and will reflect the total meter usage for that quarter.

If a Permittee increases its fleet size during the Permit term, the Permittee must report to the City the number of new vehicles to be added to their fleet Permit. These vehicles must be added to the Permit and the FFZPP fee must be paid for these vehicles. The City may charge a pro-rated Permit fee for each vehicle added (see the Permit Term section).

Master Residential Parking Permit

The Master Residential Parking Permit (MRPP) fees are published in the Master Fee Schedule. For Fiscal Year 19-20, the cost of an MRPP is $105 per car sharing vehicle per year.

The intent of this fee is to allow car sharing vehicles equivalent curbside parking privileges to private vehicles in residential areas. Because car share vehicles are expected to rotate in an unpredictable fashion within and among residential parking areas, the City deems it necessary to open all residential parking areas to car sharing vehicles; the City has valued this privilege at approximately three (3) times the value of a standard Residential Parking Permit (RPP). The cost

of a new RPP was $35 at program inception, but has since risen to $84. Thus the City derived the $105 Permit fee from three (3) times the cost of the $35 fee. In FY 19-20, the fee for the MRPP is likely to increase with the updated cost of the RPP (see the **Error! Reference source not found.** on page **Error! Bookmark not defined.**)

INSURANCE REQUIREMENTS

The Permittee shall maintain in force at its own expense, each type of insurance noted below:

1. Commercial General Liability Insurance covering bodily injury and property damage in a form and with coverage that is satisfactory to the City. This insurance shall include personal and advertising injury liability, products and completed operations. Coverage shall be written on an occurrence basis. The limit per occurrence shall not be less than $2,000,000 or as may be required by subsequent amendment and shall provide that the City of Oakland, and its agents, officers, and employees are Additional Insured.

2. Automobile Liability insurance with a combined single limit of not less than $2,000,000 per occurrence for Bodily Injury and Property Damage, including coverage for owned, hired, or non-owned vehicles, as applicable.

3. On all types of insurance. There shall be no cancellation, material change, reduction of limits, or intent not to renew the insurance coverage(s) without 30-days written notice from the Permittee or its insurer(s) to the City.

4. Certificates of insurance. As evidence of the insurance coverages required by this permit, the Permittee shall furnish acceptable insurance certificates to the City at the time Permittee returns signed permits. This certificate will specify all of the parties who are Additional Insured and will include the 30-day cancellation clause that provides that the insurance shall not terminate or be cancelled without 30-days written notice first being given to the City Auditor. Insuring companies or entities are subject to City acceptance. If requested, complete policy copies shall be provided to the City. The Permittee shall be financially responsible for all pertinent deductibles, self-insured retentions, and/or self-insurance.

5. The Department of Transportation will automatically revoke this permit without further action if this insurance is permitted to lapse, is canceled, or for any other reason becomes inoperative.

PERMIT APPLICATION AND SERVICE INITATION

To apply for and receive a FFZPP or MRPP, as well as initiate the car sharing service, the applicant will follow the following steps:

1. Apply for and obtain a Qualified Car Sharing Organization Certificate.

2. Submit to the Department of Transportation a proposed free-floating zone area map.

3. Submit an FFZPP Fleet Permit and/or MRPP application with 1) the Qualified Car Sharing Organization Certificate, 2) the City-approved free-floating zone area map 3) the applicable information about the car sharing vehicles in the fleet, 4) the payment for Permit fees, and 5) other supporting documentation, as needed.

4. Conduct outreach meetings, as appropriate.

5. Receive Permits and apply sticker decals to car sharing vehicles.

Documentation of these steps, an estimated timeline of the application process, and other updates will be posted to the City's website: https://www.oaklandca.gov/services/dot/car-share-program

The City expects Permittees to initiate the car sharing services during the Permit term in which the Permits were purchased. If the Permittee does not initiate car sharing services during the Permit term in which the Permits were purchased, the unused Permits will be revoked and ineligible to renew in a subsequent Permit term.

Because the City recognizes the first two years of sales of these permits as the Pilot Program, the period within which to initiate service is the entire Permit term. For instance, a Permittee that receives Permits on April 1, 2016 will have until December 31, 2016 to initiate car sharing services. In subsequent years, the time period between when the Permits are issued and when car sharing services are initiated may be shortened.

DATA REPORTING AND RECORD KEEPING

Reporting to the City

The Permittee agrees to survey members at least once (1 time) per Permit term, consult with the City on questions included in the survey, and provide results of the annual survey to the Car Share Contact in the Department of Transportation.

The Permittee is also required to report, on a monthly or quarterly basis, information regarding the fleet and membership. The goal of these reports is to better understand how the entire car share system is being utilized and to better inform future policy changes. The Permittee will work with the City to provide the following information on their company's operations, such as:

1. Number of vehicles in fleet

2. Parking locations of vehicles

3. Fleet usage

4. Total number of members

5. Member Survey and General Demographics

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) and MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

Information submitted to the City is subject to the City of Oakland's Sunshine Ordinance (Oakland Municipal Code Chapter 2.20 – Public Meetings and Public Records) and the California Public Records Act (Government Code Section 6250 et seq.). If the Permittee believes that any material it submits constitutes trade secrets, privileged information, or confidential commercial or financial data, then the Permittee should mark those items as confidential or proprietary. The City is not bound by the Permittee's determination as to whether materials are subject to disclosure under CPRA and reserves the right to independently determine whether the materials are required to be made available for inspection or otherwise produced under CPRA. If the City receives a request for such information marked as confidential, it will notify the Permittee. If a suit is filed to compel disclosure of such information, the City will notify the Permittee, and the Permittee shall be responsible for taking appropriate action to defend against disclosure of its confidential information, and will hold the City harmless from any costs or liability resulting from any CPRA litigation.

The Permittee shall furnish to the City a report each month, quarter or Permit term (as determined by the Permittee and the City), due within 30 days from end of that quarter or term, containing monthly summary data related to parking events in the Free-Floating Parking Zone for the prior quarter. This data should detail the time parked in the meter zones as well as sum up the meter usage costs in relation to FFPP deposits. Should the Permittee's FFZPP and/or MRPP include the Montclair Flexible Parking Rate District or any future flexible parking rate districts, the Permittee must track the parking meter rate changes and apply them to the parking events, which can change as often as every sixty days. This data will be used to evaluate quarterly or term charges related to metered parking fees. If the City Council approves any changes to metered parking rates or meter districts during the Permit term, the Permit fee will be adjusted to reflect the changes. Changes to meter rates will be published within the City's Master Fee Schedule.

The Permittee will agree to work with and provide access to members to independent researchers, who will study to the environmental, social, and economic impacts of the two- year expansion of car sharing in Oakland as a part of the car sharing grant awarded to the City of Oakland from the Metropolitan Transportation Commission (85459 C.M.S.). The City will provide details about the evaluation to Permittees during the Permit application process.

Records

The Permittee shall retain and maintain all records and documents relating to the Permit for five (5) years after the date in which this Permit terminates, and shall make them available for inspection and audit by authorized representatives of the City. Permittee shall make available all requested data and records at reasonable locations within the City of Oakland at any time during normal business hours, and as often as the City deems necessary. If records are not made available within the City of Oakland, the Permittee shall pay the city's travel costs to the location where the records are maintained. Failure to make requested records available for audit by the date requested may result in termination of the permit.

ENFORCEMENT

Parking Enforcement

The City will train its parking enforcement technicians in the new privileges associated with the FFZPP and MRPP, and equip technicians with approved area maps. The Department of Transportation will be responsible for keeping the parking enforcement staff apprised of changes to a Permittee's approved free-floating zone area and new sales of MRPPs.

With the exceptions of the aforementioned privileges bestowed to car sharing vehicles and Permittees (see Privileges of the Free-Floating Zone Parking Permit on page 4), car sharing vehicles are subject to all other traffic and parking regulations outlined in *Title 10 – Vehicles and Traffic* of the Oakland Municipal Code. Parking enforcement technicians will issue citations to car sharing vehicles for violations as they would private automobiles. Permittees with outstanding parking citations will not be allowed to renew FFZPPs or MRPPs until citations have been resolved with the Parking Operations Division.

Financial and Field Audits

The City reserves the right to conduct a financial review and/or audit of the Permittee. If the City commences an audit of a Permittee, the Permittee will be notified of the forthcoming audit at least thirty (30) days in advance of the audit by mail and by email. Details of the financial information to be provided to the City will be included in the notification.

The Permittee shall establish and maintain a reasonable accounting system that enables the City to readily identify the Permittee's assets, expenses, costs of goods, and use of funds. The City and its authorized representatives shall have the right to audit, to examine, and to make copies of or extracts from all financial and related records (in whatever form they may be kept, whether written, electronic, or other) relating to or pertaining to the Terms and Conditions of the permit, including, but not limited to those kept by the Permittee, its employees, agents, assigns, successors, and subcontractors. Such records shall include, but not be limited to, accounting records, written policies and procedures; subcontract files; all paid vouchers including those for out-of-pocket expenses; other reimbursement supported by invoices; ledgers; cancelled checks; deposit slips; bank statements; journals; original estimates; estimating work sheets; contract amendments and change order files; backcharge logs and supporting documentation; insurance documents; payroll documents; timesheets; memoranda; and correspondence. The City shall have the right to conduct an audit or examination no more than two (2) times per calendar year.

The City reserves the right to conduct field audits of car sharing vehicles in which parking enforcement officers record locations of parked car sharing vehicles and cross-check them against reports of parking activity provided to the City by the Permittee. The Permittee shall, at all times during the term of the permit and for a period of five (5) years after the permit term, maintain such records, together with such supporting or underlying documents and materials. The Permittee shall at any time requested by the City, whether during or after the permit term, make such records available for inspection and audit by the City. Such records shall be made available to the City during normal business hours and subject to a thirty (30) day written notice by electronic mail and first-class U.S. Postal Service delivery. In the event that no such location

is available, then the financial records, together with the supporting or underlying documents and records, shall be made available for audit at a time and location that is convenient for the City. The Permittee shall ensure the City has these rights with the Permittee's employees, agents, assigns, successors, and subcontractors, and the obligations of these rights shall be explicitly included in any subcontracts or agreements formed between the Permittee and any subcontractors to the extent that those subcontracts or agreements relate to fulfillment of the Permittee's obligations to the City. Costs of any audits and examinations conducted under the authority of this right to audit and not addressed elsewhere in this contract will be borne by the City. The City will issue a warning to the Permittee if it fails either a financial or field audit. The Permittee risks revocation of some or all individual FFZPPs or MRPPs, if the Permittee fails to take measures to address the audit failure or repeats a failure in a subsequent audit.

REVOCATION

The City of Oakland reserves the right to revoke a FFZPP or MRPP at any time upon written notice of revocation sent to both the Permittee's mailing and email addresses listed on the Permittee's Application submitted to the City.

The Permittee agrees to surrender such permit in accordance with the instructions in the notice of revocation. In the event that the City revokes a FFZPP or MRPP, Permittee shall cease operations in the public right of way within ten (10) business days from the date the notice of revocation was mailed and emailed by the City to the Permittee.

If the Permittee wishes to contest the revocation of a permit, the Permittee may contact, within ten (10) days of the date of revocation, the Supervisor of the Shared Mobility Coordinator, appropriate transportation manager within the City of Oakland or the Supervisor of the Parking Permits and Citations Office within the Department of Finance and Management to explain any basis for why the Permit should not be revoked.

In circumstances that pose a serious threat to public health or safety, the City reserves the right to immediately revoke an FFZPP and/or MRPP effective on the date the notice of revocation is mailed and emailed to the Permittee. The City shall state the public health or safety reasons that require immediate revocation in the notice of revocation. In such circumstances, the Permittee shall be required to immediately remove the car sharing vehicle from the public right of way.

This permit is revocable by the City Traffic Engineer at any time in the event the public's need requires it, or the Permittee fails to comply with the conditions of this Permit. No expenditure of money hereunder, lapse of time, or other act or thing shall operate as an estoppel against the City of Oakland, or be held to give the Permittee any vested or other right. Upon the expiration of this permit, or upon its sooner revocation by the City Traffic Engineer, the City shall no longer provide said right of this Permit.

INDEMNIFICATION

Permittee shall indemnify and save harmless City and its officers, agents and employees from, and, if requested, shall defend them against any and all loss, cost, damage, injury, liability, and claims thereof for injury to or death of a person, including employees of Permittee or loss of or damage to property, arising directly or indirectly from Permittee's performance of this Permit, including, but not limited to, Permittee's use of facilities or equipment provided by City or others, regardless of the negligence of, and regardless of whether liability without fault is imposed or sought to be imposed on City, except to the extent that such indemnity is void or otherwise unenforceable under applicable law in effect on or validly retroactive to the date of this Agreement, and except where such loss, damage, injury, liability or claim is the result of the active negligence or willful misconduct of City and is not contributed to by any act of, or by any omission to perform some duty imposed by law or agreement on Permittee, its subpermittees or either's agent or employee. The foregoing indemnity shall include, without limitation, reasonable fees of attorneys, consultants and experts and related costs and City's costs of investigating any claims against the City.

FREE-FLOATING ZONE PARKING PERMIT (FFZPP) and MASTER RESIDENTIAL PARKING PERMIT (MRPP) TERMS AND CONDITIONS

In addition to Permittee's obligation to indemnify City, Permittee specifically acknowledges and agrees that it has an immediate and independent obligation to defend City from any claim which actually or potentially falls within this indemnification provision, even if the allegations are or may be groundless, false or fraudulent, which obligation arises at the time such claim is tendered to Permittee by City and continues at all times thereafter. Permittee shall indemnify and hold City harmless from all loss and liability, including attorneys' fees, court costs and all other litigation expenses for any infringement of the patent rights, copyright, trade secret or any other proprietary right or trademark, and all other intellectual property claims of any person or persons in consequence of the use by City, or any of its officers or agents, of articles or services to be supplied in the performance of this Permit.

Permittee shall indemnify, defend and hold harmless the City of Oakland, is officers, agents and employees from and against all claims, demands, suits, actions, damages, liabilities, costs and expenses of whatsoever nature, including all attorney fees and costs, relating to, resulting from or arising out of the permitted activities. This Permit is personal to the Permittee and may not be transferred, assigned or otherwise conveyed. Identification of vehicle as belonging to this car sharing organization must be clearly visible on the vehicle, in contrasting colors with letters two inches high or larger.

COMPLIANCE WITH ADDITIONAL TERMS AND CONDITIONS

Permittee agrees to comply with any and all additional written terms and conditions required by the City of Oakland for participation in the Car Sharing Program. Permittee acknowledges that these written terms and conditions may be changed, amended, or revised at any time by the City upon written notification to the Permittee. By acceptance of a FFZPP and/or MRPP, Permittee agrees to comply with any changed, amended or revised written terms and conditions within thirty (30) days of written notification by the City. Failure to comply with any or all terms and conditions required by the City in the FFZPP and/or the MRPP can result in the revocation of any or all FFZPPs and/or MRPPs issued to the Permittee upon written notice of revocation by the City.

COMPLIANCE WITH APPLICABLE LAW

The Permittee represents and certifies, under penalty of perjury, that the Car Share Organization and the car sharing vehicles on whose behalf the Permittee is seeking this Permit is in compliance with all California Vehicle Code requirements, FFZPP requirements, and Qualified Car Sharing Organization criteria set forth here and in the City's Municipal Code.

RESPONSIBILITIES OF PERMITTEE

It is responsibility of the Permittee to:

1. Operate a legitimate car sharing service that benefits the residents of Oakland.
2. Maintain its Qualified Car Sharing Organization status during the term of the FFZPP and/or MRPP.

3. Maintain adequate and sufficient insurance coverage.
4. Conduct outreach to Oakland residents and businesses, as appropriate.
5. Ensure that car sharing vehicles display evidence of the FFZPP and/or MRPP.
6. For FFZPP Only: Maintain an approved Free-Floating Parking Zone.
7. For FFZPP Only: Submit documentation of changes of the free-floating zone area no more than four (4) times within the Permit term.
8. Track and report to the City parking activity of car sharing vehicles within the free-floating zone area or within residential permit parking areas.
9. Pay upfront Permit fees as specified in the Master Fee Schedule, and reconcile balance differences at the end of the Permit term with respect to the amount of actual parking activity.
10. Pay the City all citations and towing fees incurred by the Permittee's car sharing vehicles, however the pass-through of fees to the member is justified wherein the member is the responsible party, according to the California Vehicle Code and/or the Oakland Municipal Code.
11. Report changes in license plate numbers, vehicle registrations, and other required vehicle information to the Parking Operations Supervisor, as changes to the Permitted fleet occur during the term of the permit.
12. Facilitate the City's financial and/or field audits and take steps to address the City's recommendations from the audits.
13. Meet all the requirements of the FFZPP and MRPP.

RESPONSIBILITIES OF THE CITY

It is the responsibility of the City to:

1. Fulfill the objectives of the Car Sharing Policy (85459 C.M.S.).
2. Administer a fair, timely, and efficient FFZPP process.
3. Coordinate internally to communicate changes to maps, Permits, Permit fees, etc. between divisions and departments.
4. Keep records of Qualified Car Sharing Organization certifications and Permits granted.
5. Approve the list of outreach activities proposed by the applicant prior to establishing or expanding a free-floating zone area.

6. Conduct outreach to Oakland residents and businesses, as appropriate.
7. Respond to concerns and petitions of Oakland residents and businesses, as appropriate.
8. Assess Permit fees as defined in the Master Fee Schedule.
9. Enforce the Traffic and Vehicle Code.
10. Conduct audits of Permittees to ensure that car sharing services follow regulations and accurately report parking activity, as needed.
11. Receive and analyze reports of parking activity.
12. Respond to requests from Permittees, as defined in the FFZPP Terms and Conditions, in a timely and efficient manner
13. Keep Permittees apprised of changes to Permit terms and conditions, parking and curb designations, and parking meter rates and permit fees.
14. Keep Permittees apprised of changes to key City personnel and provide a staff contact to car sharing organizations.

Revel

Fall 2019

REVEL

Meet Revel. Seamless integration into the existing transportation network.

Street Legal — Every vehicle has a DMV-issued license plate and requires a drivers license to operate. No motorcycle license required.

Space Efficient — Parks in curb dead space. An average parking spot fits 7 mopeds

Affordable — Cheaper than UberX, Lyft, UberPool

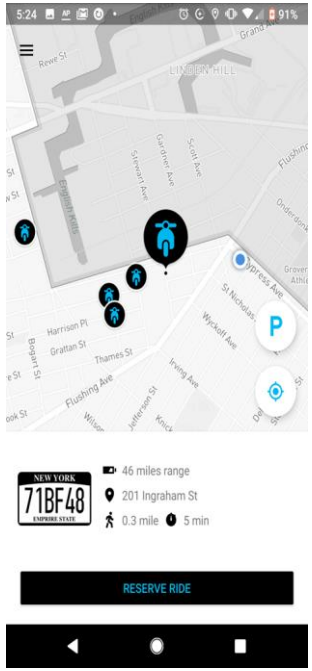
Sustainable — 100% of the fleet is 100% emissions-free. Electrically powered, they're also noise-free

Multiple uses — Great for short trips, middle mile and complete trips. Replace car trips, relieve/supplement congested transit lines

REVEL

How it works.

1. Open the Revel app to find a nearby vehicle.
2. Click to reserve (up to 15 min), at vehicle click to start and unlock helmet case.
3. Begin ride and park in a legal parking spot when you reach your destination. Close ride.



Reserve and ride wherever you need to go!

Open the App

Locate nearest Revel

REVEL

Safety is paramount.

- Drivers must be at least **21 years old** with a **valid license** and safe driving record.
  - ✓ Before registration is complete Revel performs background checks to verify riders' information.
  - ✓ Users must also submit a selfie to verify they are the license-holders.

- **2 USDOT certified helmets** equipped with eye protection shields are stored in each Revel at all times.
- As motor vehicles, Revel's **travel in traffic lanes, park curbside** and have safety equipment consistent with or exceeding state DMV and insurance board standards.
- Speed **throttled at 30mph** to keep up with traffic, license plates ensure accountability.

REVEL

We’re committed to free safety education for all.

- Revel offers free in-person lessons to existing and potential riders 7 days a week
- Each trip begins with a safety checklist
- Ride ends with reminders to ensure proper parking
- Our team is available to provide immediate customer support during operating hours

REVEL

Our pilot has been a success.

July 2018 – April 2019: 68 e-mopeds in Bushwick, Greenpoint & Williamsburg

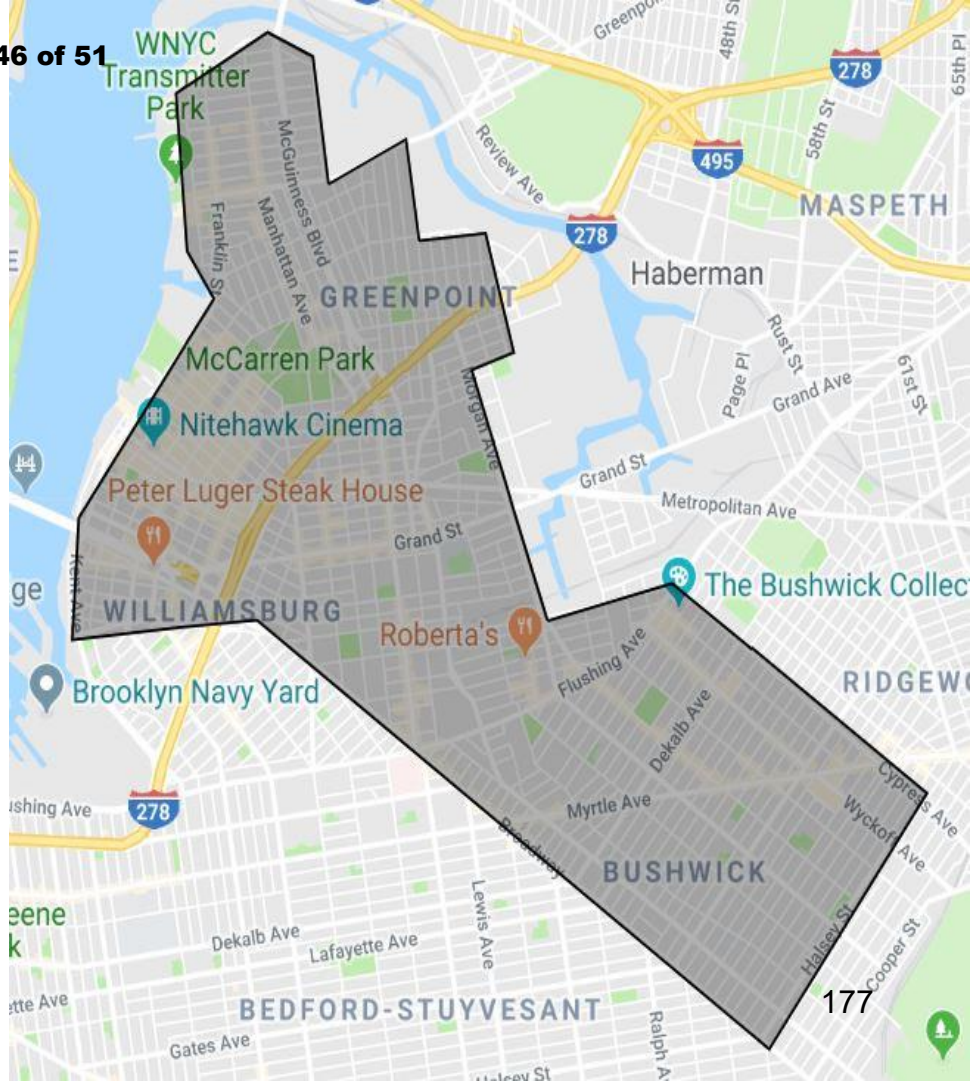
- 27,000+ rides
- 2.5 mi avg ride
- 3,500+ users
- >200 lessons

Customer Reviews

“Shockingly easy to use, incredible customer service, and neighborhood-to-neighborhood no-brainer. So glad it's here, it better be to stay.”

“Best customer service I've ever experienced, ever.”

“I never knew how much fun and exciting it would be until I got on it and I love it, I can see this company going far.”



REVEL

2018 Brooklyn Pilot: Rider Feedback

REVEL

Data and rider feedback have helped us make Revel even better.

2018

$4 for 20 minutes, $0.25 each additional minute

Center kickstand, common for mopeds, motorcycles

Manual turn-off blinkers, common for mopeds

200lbs of weight centralized

Safety / education material on our website

Seat ~32” from the ground

2019

$1 unlock fee, $0.25 each additional minute

Side kickstand, common for bicycles

Auto turn-off blinkers, common for typical passenger vehicles

200lbs of weight distributed for improved balance and command over the vehicle

Safety / education material on both our website and app

Seat ~29” from the ground

REVEL

NYC Expansion 2019

As a result of such a successful pilot, with support from local leaders, on May 28th we expanded our fleet of 68 vehicles in three neighborhoods to a fleet of **1000** across approximately **20**.

In just the first month **tens of thousands of new users** signed up, with vehicles averaging **7+ trips per day**.


THE NEW YORK CITY COUNCIL

Proclamation

The New York City Council is proud to welcome Revel Transit to New York City's wide range of transportation options; and

WHEREAS: Transportation has been the lifeblood of our city for generations. Since our earliest days, New Yorkers have depended upon everything from ships and subways to buses, cars and many other modes of transportation to get us from point to point. While our dependence on this vibrant network has grown so has the urgency for more environmentally friendly alternatives. Today, 30 percent of New York City's greenhouse gas emissions are caused by transportation, and 85 percent of those are from private vehicles. The City Council encourages innovation that breaks the dependency on car culture and supports greener vehicles throughout the five boroughs. Revel Transit is among the newest options; and

WHEREAS: Revel Transit, founded in Brooklyn in 2018 by its CEO Frank Reig and COO Paul Suhey, is a fleet of zero-emission electric mopeds intended to fit seamlessly into New York City's existing transportation network, giving residents and visitors an efficient way to get to and from their destination; and

WHEREAS: Since Revel Transit's debut last year, New Yorkers have already taken more than 35,000 rides, traveling more than 85,000 miles within the five boroughs; and

WHEREAS: On this occasion, Revel Transit is expanding its fleet of mopeds to over 20 neighborhoods in Brooklyn and Queens, thus reaffirming its commitment to serving more communities throughout New York City; and

WHEREAS: We commend Revel Transit for its commitment to rider education and customer service and its efforts to make its fleet available and accessible to as many New Yorkers as possible; now, therefore

BE IT KNOWN: That the New York City Council is proud to honor

Revel Transit

for providing more environmentally friendly transportation alternatives in New York City.

Signed this 31st day of May in the year Twenty Nineteen.

CORY JOHNSON
Speaker
For the Entire Council

REVEL

Moving forward in 2019.

- We have **expanded our footprint in NYC**, in August we **launched a fleet in Washington DC** and plan to launch in additional cities across the United States.
- We will engage early and often with cities. Our approach is to **listen, deploy, learn and refine**.
- Our goal is to fit seamlessly into cities' existing transportation networks, offering a new option for all residents. Particularly in neighborhoods with **limited transit options**, **lower rates of car ownership**, and those **historically underserved** by companies offering innovative mobility solutions.
- We are also committed to **equitable riding** that is **accessible to all residents.** We will continue to offer an **equitable access rider program** with a **40 percent discount** off our standard pricing. We will also invest in marketing to traditionally underserved communities.
- **Revel doesn't do gig economy**. We staff full-time employees with benefits including health insurance and 401k. We will also establish a physical presence in every city we operate, with locally-based employees on the ground so we remain responsive to our customers, city government and our community.

REVEL

We're here to help.

Our approach is to listen, deploy, learn and refine.

Call (or text) us anytime with questions, concerns or if you want to take a test ride!

Daniella Henry, Associate Director, Policy
860-212-8088/Daniella.Henry@gorevel.com

Haley Rubinson, Director of Business Development
917-572-5122/haley.rubinson@gorevel.com