

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

**Wednesday, July 1, 2020  
2:30 PM**

Committee Members:

Councilmembers Cheryl Davila, Kate Harrison, and Rigel Robinson  
Alternate: Councilmember Sophie Hahn

**PUBLIC ADVISORY: THIS MEETING WILL BE CONDUCTED EXCLUSIVELY THROUGH  
VIDEOCONFERENCE AND TELECONFERENCE**

Pursuant to Section 3 of Executive Order N-29-20, issued by Governor Newsom on March 17, 2020, this meeting of the City Council Facilities, Infrastructure, Transportation, Environment & Sustainability Policy Committee will be conducted exclusively through teleconference and Zoom videoconference. Please be advised that pursuant to the Executive Order, and to ensure the health and safety of the public by limiting human contact that could spread the COVID-19 virus, there will not be a physical meeting location available.

To access the meeting remotely using the internet: Join from a PC, Mac, iPad, iPhone, or Android device: Use URL <https://us02web.zoom.us/j/89549591843>. If you do not wish for your name to appear on the screen, then use the drop down menu and click on "rename" to rename yourself to be anonymous. To request to speak, use the "raise hand" icon on the screen.

To join by phone: Dial **1-669-900-9128** and Enter Meeting ID: **895 4959 1843**. If you wish to comment during the public comment portion of the agenda, press \*9 and wait to be recognized by the Chair.

Written communications submitted by mail or e-mail to the Facilities, Infrastructure, Transportation, Environment & Sustainability Committee by 5:00 p.m. the Friday before the Committee meeting will be distributed to the members of the Committee in advance of the meeting and retained as part of the official record. City offices are currently closed and cannot accept written communications in person.

# AGENDA

## Roll Call

## Public Comment on Non-Agenda Matters

## Minutes for Approval

*Draft minutes for the Committee's consideration and approval.*

### 1. Minutes - March 5, 2020

## 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. **Introduce an Ordinance terminating the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025** (*Revised Material Received*)

**From: Councilmember Davila**

**Referred: November 18, 2019**

**Due: October 24, 2020**

**Recommendation:** Adopt a resolution with the following actions:

1. Direct the City Attorney to prepare any draft ordinances to terminate the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025; this shall include the termination of purchasing these vehicles to support City fleets and, for the general public, a staged phase out such as cars over \$28K by 2023, cars over \$22K by 2024, and all cars by 2025, so as to actively create a used electric vehicle market for lower income customers that allows them to acquire electric vehicles at a cost equal to or below that of comparable gasoline, diesel, or natural gas vehicles.

2. Short term referral to the City Manager and/or designee(s) to report to the City Council in 90 days, in consultation with other City Departments with the following information: (A) Feasibility of terminating the sale of gasoline, diesel and natural gas passenger vehicles; (B) ways to promote and facilitate the sale of all-electric vehicles in the City, particularly among low income communities, including the provision of local tax incentives and rebates, as large as is necessary to cover any cost difference between an electric car and a comparable gas car; the simplification of building code requirements for chargers; and the establishment of charging stations and related infrastructure to support all-electric vehicles; (C) any “just transition” elements related to the above action, including the impact upon and opportunities for auto mechanics.

**Financial Implications:** See report

Contact: Cheryl Davila, Councilmember, District 2, (510) 981-7120

## Committee Action Items

### 3. Traffic Circle Policy and Program Recommendations

**From:** From: Traffic Circle Policy Task Force

**Referred:** November 12, 2019

**Due:** October 18, 2020

**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

### 4. 100% Sustainable Trips by 2045

**From:** Community Environmental Advisory Commission

**Referred:** March 30, 2020

**Due:** December 15, 2020

**Recommendation:** Adopt the attached Resolution, setting a goal of achieving 100% of trips taken by sustainable modes by 2045, and refer to the Community Environmental Advisory Commission, the Energy Commission, and the Transportation Commission to develop relevant proposals and recommendations for accomplishing that goal.

**Financial Implications:** See report

Contact: Viviana Garcia, Commission Secretary, (510) 981-7460

## 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.*

5. **Bright Streets Initiative** *(Supplemental Material Received)*  
**From: Councilmembers Hahn and Harrison**  
**Referred: November 25, 2019**  
**Due: October 31, 2020**  
**Recommendation:** 1. Refer to the City Manager to paint all crosswalks, midlines, bike lanes, and other street markings, clarify and/or improve traffic signage, and paint curbs along collector and arterial streets throughout the City of Berkeley, and within a three-block radius of all Berkeley public schools, to improve safety and support Vision Zero goals. Streets, signage, and curbs that have been redone in the past three years and remain in very good condition need not be repainted and/or replaced.  
2. Such work to be completed prior to commencement of the 2020-21 Berkeley Public School Year.  
**Financial Implications:** See report  
Contact: Sophie Hahn, Councilmember, District 5, (510) 981-7150
  
6. **Adopt an Ordinance Adding a Chapter 11.62 to the Berkeley Municipal Code to Regulate Plastic Bags at Retail and Food Service Establishments**  
**From: Councilmembers Harrison and Hahn**  
**Referred: November 25, 2019**  
**Due: October 31, 2020**  
**Recommendation:** Adopt an ordinance adding a Chapter 11.62 to the Berkeley Municipal Code to regulate plastic bags at retail and food service establishments.  
**Financial Implications:** See report  
Contact: Kate Harrison, Councilmember, District 4, (510) 981-7140

## Unscheduled Items

- 7. Potential Bonding and Funding Opportunities for Improving the PCI of Residential Streets, and Creating a Paving Master Plan** *(Item Contains Supplemental Material)*  
**Referred: January 21, 2020**  
**Due: October 7, 2020**  
**Recommendation:** On January 21, 2020, the City Council referred the following language from the revised agenda material from Councilmember Harrison in the Supplemental Communications Packet 2, and as further revised by the Council, to the Facilities, Infrastructure, Transportation, Environment & Sustainability Committee for consideration:  
Refer to the Facilities, Infrastructure, Transportation, Environment, & Sustainability Committee to work with the Public Works Department and the Commission to explore potential bonding and funding opportunities for improving the PCI of residential streets, and creating a paving master plan.
- 8. Prohibition on the Resale of Used Combustion Vehicles in 2040**  
**From: Community Environmental Advisory Commission**  
**Referred: March 30, 2020**  
**Due: November 2, 2020**  
**Recommendation:** Review and refer to the City Attorney for finalization the attached ordinance prohibiting the resale of used, existing combustion-powered vehicles beginning in 2040.  
**Financial Implications:** See report  
Contact: Viviana Garcia, Commission Secretary, (510) 981-7460
- 9. Prohibition on the Use of City Streets for Operating, Parking, or Idling Combustion Vehicles by 2045**  
**From: Community Environmental Advisory Commission**  
**Referred: March 30, 2020**  
**Due: November 2, 2020**  
**Recommendation:** Review and refer to the City Attorney for finalization the attached ordinance prohibiting the use of City-owned streets for the operation, parking, or idling of combustion vehicles beginning in 2045, and establishing an offset-driven fee-based enforcement mechanism.  
**Financial Implications:** See report  
Contact: Viviana Garcia, Commission Secretary, (510) 981-7460

## Unscheduled Items

10. **Prohibition on the Sale of Gasoline, Diesel, and Other Carbon-Based Transportation Fuels by 2045**  
**From: Community Environmental Advisory Commission**  
**Referred: March 30, 2020**  
**Due: November 2, 2020**  
**Recommendation:** Review and refer to the City Attorney for finalization the attached ordinance prohibiting the sale of gasoline, diesel, and other carbon-based transportation fuels effective January 1st, 2045.  
**Financial Implications:** See report  
Contact: Viviana Garcia, Commission Secretary, (510) 981-7460

## Items for Future Agendas

- **Discussion of items to be added to future agendas.**
- **Discussion of the creation of the Department of Climate Emergency Mobilization.**

## Adjournment

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*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:

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.

~~~~~  
I hereby certify that the agenda for this meeting of the Standing Committee 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 June 25, 2020.



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.*





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

**Thursday, March 5, 2020  
2:00 PM**

2180 Milvia Street, 6th Floor - Redwood Room

Committee Members:

Councilmembers Cheryl Davila, Rigel Robinson, and Kate Harrison  
Alternate: Councilmember Sophie Hahn

**MINUTES**

**Roll Call:** 2:05 p.m.

**Present:** Robinson, Harrison

**Absent:** Davila

**Adopt Meeting Schedule:** First and Third Wednesdays at 2:30 – 4:30 p.m.

**Public Comment on Non-Agenda Matters:** 1 speaker.

**Minutes for Approval**

*Draft minutes for the Committee's consideration and approval.*

**1. Minutes - February 18, 2020**

**Action:** M/S/C (Robinson/Harrison) to approve the minutes as presented.

**Vote:** Ayes – Robinson, Harrison; Noes – None; Abstain – None; Absent – Davila.

**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. **Introduce an Ordinance terminating the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025** (*Revised Material Received*)

**From: Councilmember Davila**

**Referred: November 18, 2019**

**Due: May 17, 2020**

**Recommendation:** Adopt a resolution with the following actions:

1. Direct the City Attorney to prepare any draft ordinances to terminate the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025; this shall include the termination of purchasing these vehicles to support City fleets and, for the general public, a staged phase out such as cars over \$28K by 2023, cars over \$22K by 2024, and all cars by 2025, so as to actively create a used electric vehicle market for lower income customers.

2. Short term referral to the City Manager and/or designee(s) to report to the City Council in 90 days, in consultation with other City Departments with the following information: (A) Feasibility of terminating the sale of gasoline, diesel and natural gas passenger vehicles; (B) ways to promote and facilitate the sale of all-electric vehicles in the City, particularly among low income communities, including the provision of local tax incentives and rebates; the simplification of building code requirements for chargers; and the establishment of charging stations and related infrastructure to support all-electric vehicles; (C) any “just transition” elements related to the above action, including the impact upon and opportunities for auto mechanics.

**Financial Implications:** See report

Contact: Cheryl Davila, Councilmember, District 2, (510) 981-7120

**Action:** The item was continued to March 18, 2020.

3. **Bright Streets Initiative**

**From: Councilmembers Hahn and Harrison**

**Referred: November 25, 2019**

**Due: May 24, 2020**

**Recommendation:** 1. Refer to the City Manager to paint all crosswalks, midlines, bike lanes, and other street markings, clarify and/or improve traffic signage, and paint curbs along collector and arterial streets throughout the City of Berkeley, and within a three-block radius of all Berkeley public schools, to improve safety and support Vision Zero goals. Streets, signage, and curbs that have been redone in the past three years and remain in very good condition need not be repainted and/or replaced.

2. Such work to be completed prior to commencement of the 2020-21 Berkeley Public School Year.

**Financial Implications:** See report

Contact: Sophie Hahn, Councilmember, District 5, (510) 981-7150

**Action:** 2 speakers. Discussion held. The item was continued to March 18, 2020, to allow staff to present on proposed design standards.

## Committee Action Items

4. **Potential Bonding and Funding Opportunities for Improving the PCI of Residential Streets, and Creating a Paving Master Plan** (*Supplemental Material Received*)

**Referred: January 21, 2020**

**Due: May 20, 2020**

**Recommendation:** On January 21, 2020, the City Council referred the following language from the revised agenda material from Councilmember Harrison in the Supplemental Communications Packet 2, and as further revised by the Council, to the Facilities, Infrastructure, Transportation, Environment & Sustainability Committee for consideration:

Refer to the Facilities, Infrastructure, Transportation, Environment, & Sustainability Committee to work with the Public Works Department and the Commission to explore potential bonding and funding opportunities for improving the PCI of residential streets, and creating a paving master plan.

**Action:** No speakers. Discussion held.

The committee requested staff to return with more information regarding the subsets of funding, other expenditures, and fund balances over three years. The item was continued to March 18, 2020.

## 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.*

### 5. **Traffic Circle Policy and Program Recommendations**

**From: From: Traffic Circle Policy Task Force**

**Referred: November 12, 2019**

**Due: May 11, 2020**

**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

**Action:** The item will be scheduled for March 18, 2020.

## Unscheduled Items

**6. Adopt an Ordinance Adding a Chapter 11.62 to the Berkeley Municipal Code to Regulate Plastic Bags at Retail and Food Service Establishments**

**From: Councilmembers Harrison and Hahn**

**Referred: November 25, 2019**

**Due: May 24, 2020**

**Recommendation:** Adopt an ordinance adding a Chapter 11.62 to the Berkeley Municipal Code to regulate plastic bags at retail and food service establishments.

**Financial Implications:** See report

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

**Action:** The item will be scheduled for March 18, 2020.

## Items for Future Agendas

- Discussion of items to be added to future agendas

## Adjournment

**Action:** M/S/C (Robinson/Harrison) to adjourn the meeting.

**Vote:** All Ayes.

Adjourned at 3:20 p.m.

I hereby certify that this is a true and correct record of the Facilities, Infrastructure, Transportation, Environment & Sustainability Committee meeting held on March 5, 2020.

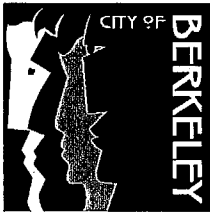
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Michael MacDonald, Assistant City Clerk



Previous version and track changes:

02



Cheryl Davila  
Councilmember  
District 2

RECEIVED AT  
COUNCIL MEETING OF:

DEC 05 2019

OFFICE OF THE CITY CLERK  
CITY OF BERKELEY

CONSENT CALENDAR  
December 3, 2019

To: Honorable Mayor and Members of the City Council  
From: Councilmember Cheryl Davila  
Subject: Introduce an Ordinance terminating the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025

RECOMMENDATION

Adopt a resolution with the following actions:

1. Direct the City Attorney to prepare any draft ordinances to terminate the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025; this shall include the termination of purchasing these vehicles to support City fleets and, for the general public, a staged phase out such as cars over \$28K by 2023, cars over \$22K by 2024, and all cars by 2025, so as to actively create a used electric vehicle market for lower income customers that allows them to acquire electric vehicles at a cost equal to or below that of comparable gasoline, diesel, or natural gas vehicles.

2. Short term referral to the City Manager and/or designee(s) to report to the City Council in 90 days, in consultation with other City Departments with the following information: (A) Feasibility of terminating the sale of gasoline, diesel and natural gas passenger vehicles; (B) ways to promote and facilitate the sale of all-electric vehicles in the City, particularly among low income communities, including the provision of local tax incentives and rebates, as large as is necessary to cover any cost difference between an electric car and a comparable gas car; the simplification of building code requirements for chargers; and the establishment of charging stations and related infrastructure to support all-electric vehicles; (C) any "just transition" elements related to the above action, including the impact upon and opportunities for auto mechanics.

BACKGROUND

Humanity can no longer safely emit greenhouse gases if it wishes to avoid reaching irreversible climate tipping points. The nation and the world is in a climate emergency.

Emissions from vehicles powered by fossil fuels and from production and refinement of fossil fuels contribute substantially to health problems for frontline communities living near freeways, oil drill sites, and refineries. The burden of dirty fuel energy is disproportionately borne by low-income communities of color. Environmental justice requires that we acknowledge how communities of color, low-income ~~folks~~, and indigenous populations continue to suffer the most extreme impacts of climate disasters. Rates of asthma and respiratory disease are also extremely high in minority neighborhoods due to pollution and the concentration of coal refineries and transportation thoroughfares in low socioeconomic status census tracts.

**Previous version and track changes:**

Beyond this, extreme storm damage to refineries in Florida, Texas, and along the Gulf Coast have caused price spikes in gasoline prices across the country. The volatility of fossil fuel prices will continue to disproportionately impact low income residents in a climate-disrupted future. As a result, it is essential that we support low-income communities of color in particular as we make the necessary transitions to a more carbon-neutral economy.

To drastically reduce greenhouse gas emissions, the United Kingdom, India, China and Germany have already set an end date on the sales of gasoline and diesel powered passenger vehicles.

Automobile manufacturers such as Audi and Volvo are moving toward all-electric vehicle (EV) sales, and General Motors, Ford, Land Rover and BMW are introducing new lines as well. A healthy secondary electric vehicle market is already making EVs more affordable than ever.

If the City is to continue to thrive and play a role as an international leader in climate action, all efforts must be made to reduce greenhouse gas emissions in every sector, including transportation, as soon as possible. In order to protect and promote the health of its residents, the City should make all efforts to reduce exposure to toxic emissions from freeways, oil drill sites and refineries.

FISCAL IMPACTS OF RECOMMENDATION

To be determined.

ENVIRONMENTAL SUSTAINABILITY

The Berkeley City Council unanimously passed the Climate Emergency Declaration in June 2018, and has a record of passing legislation to protect our climate. It is important, now more than ever to take the next step to ensure that we are prepared and ready for the climate crisis we will face.

CONTACT PERSON

Cheryl Davila  
Councilmember, District 2  
510.981.7120  
[cdavila@cityofberkeley.info](mailto:cdavila@cityofberkeley.info)

ATTACHMENTS:

1. Resolution



Previous version and track changes:

RESOLUTION NO. XXXX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BERKELEY IN SUPPORT OF INTRODUCING AN ORDINANCE TERMINATING THE SALE OF GASOLINE, DIESEL, AND NATURAL GAS VEHICLES THROUGHOUT THE CITY OF BERKELEY BY 2025

WHEREAS, The Berkeley City Council unanimously passed the Climate Emergency Declaration on June 12, 2018; and

WHEREAS, the cities of Richmond, Oakland, Hayward, Alameda, El Cerrito, Chico, Fairfax, Healdsburg, Davis, Arcata, Cloverdale, Malibu, Petaluma, San Jose, San Mateo County, Santa Cruz City & County, Sonoma County and Windsor have also passed Climate Emergency Declarations; and

WHEREAS, There are over 48-59 cities throughout the United States who have declared a Climate Emergency, and over 4480-1217 governments and 23 countries throughout the world are also in agreement about the urgency of our climate crisis; and

WHEREAS, Unprecedented winter wildfires have destroyed parts of our region and a climate emergency mobilization of our City has never been more fiercely urgent, but the declaration is only the first step; and

WHEREAS, To act too late, or to be too cautious in our vision, carries the risk of condemning the City and its residents to an increasingly uninhabitable climate and potentially catastrophic economic losses caused by worsening disasters; and

WHEREAS, The extraction and burning of coal and gas for fossil fuel energy is a sunseting economy, predicted to decline over the next several decades<sup>1</sup>; and

WHEREAS, the renewable energy sector is predicted to widely increase and create greater economic opportunities, and currently energy efficiency provides for 10-30 times more jobs than coal or gas<sup>2</sup>; and

WHEREAS, The California State Assembly has established a goal of increasing 5 million Zero Emission Vehicles on the roads by 2030 and 250,000 electric vehicle charging stations by 2025<sup>3</sup>; and

WHEREAS, The State has also established the CA Clean Vehicle Rebate Project to assist in the affordability of purchasing new emission-reducing vehicles<sup>4</sup>; and

WHEREAS, A just transition to a sustainable economy is cognizant of the impacts of electrification initiatives on workers involved in the fossil fuel industry, including automobile mechanics, and seeks to be inclusive of all members of our community, and fortify economic success for all people; and

NOW, THEREFORE IT BE RESOLVED, that the Berkeley City Council directs the City Attorney to prepare any draft ordinances necessary to terminate the sale of gasoline, diesel and natural gas passenger vehicles- by 2025; this shall include the termination of purchasing these vehicles

<sup>1</sup> <https://siepr.stanford.edu/research/publications/what-killing-us-coal-industry>

<sup>2</sup> <https://www.nrdc.org/resources/nrdc-and-energy-efficiency-building-clean-energy-future>

<sup>3</sup> <https://www.cpuc.ca.gov/zev/>

<sup>4</sup> <https://cleanvehiclerebate.org/eng>

**Previous version and track changes:**

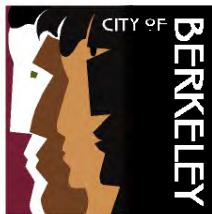
to support City fleets and, for the general public, a staged phase out such as cars over \$28K by 2023, cars over \$22K by 2024, and all cars by 2025, so as to actively create a used electric vehicle market for lower income customers that allows them to acquire electric vehicles at a cost equal to or below that of comparable gasoline, diesel, or natural gas vehicles; and

BE IT FURTHER RESOLVED, that the City Council directs the City Manager and/or Designee to report on ways to promote and facilitate the sale of all-electric vehicles in the City, particularly among low income communities, including the provision of local tax incentives and rebates; the simplification of building code requirements for chargers; and the establishment of charging stations and related infrastructure to support all-electric vehicles; and

BE IT FURTHER RESOLVED, that the City Council directs the City Manager and Staff to be instructed to report to the Council in 90 days, in consultation with other City Departments on the feasibility of terminating the sale of gasoline, diesel and natural gas passenger vehicles throughout the city by 2025; and

BE IT FURTHER RESOLVED, that the City Council directs all City Departments and proprietaries to report back on maximum emergency reductions in greenhouse gas emissions from their operations feasible by the end of 2025, with the highest priority on an equitable and just transition in all sectors; and

BE IT FINALLY RESOLVED, that the City Council directs the City Manager and/or Designee, in consultation with the Economic Development Department, to report to Council in 90 days on any "just transition" elements related to the above action, including the impact and opportunities upon auto mechanics and used car dealerships.



Cheryl Davila  
Councilmember  
District 2

CONSENT CALENDAR  
December 3, 2019

To: Honorable Mayor and Members of the City Council

From: Councilmember Cheryl Davila

Subject: Introduce an Ordinance terminating the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025

RECOMMENDATION

Adopt a resolution with the following actions:

1. Direct the City Attorney to prepare any draft ordinances to terminate the sale of gasoline, diesel and natural gas passenger vehicles throughout the City of Berkeley by 2025; this shall include the termination of purchasing these vehicles to support City fleets and, for the general public, a staged phase out such as cars over \$28K by 2023, cars over \$22K by 2024, and all cars by 2025, so as to actively create a used electric vehicle market for lower income customers.
2. Short term referral to the City Manager and/or designee(s) to report to the City Council in 90 days, in consultation with other City Departments with the following information: (A) Feasibility of terminating the sale of gasoline, diesel and natural gas passenger vehicles; (B) ways to promote and facilitate the sale of all-electric vehicles in the City, particularly among low income communities, including the provision of local tax incentives and rebates; the simplification of building code requirements for chargers; and the establishment of charging stations and related infrastructure to support all-electric vehicles; (C) any "just transition" elements related to the above action, including the impact upon and opportunities for auto mechanics.

BACKGROUND

The earth is already too hot for safety. Humanity can no longer safely emit greenhouse gases if it wishes to avoid reaching irreversible climate tipping points.

Only one degree Celsius of global warming is already causing excessive and unnecessary damage worldwide. Together, Hurricanes Harvey and Irma are estimated to have cost upwards of \$290 billion dollars. Hurricane Maria has cost Puerto Rico up to \$90 billion. Hurricane Dorian was the most costly disaster in Bahamian history, estimated at \$7 billion in property damage. The combined death tolls from these hurricanes are unprecedented.

Closer to home, the devastating wildfires in California have killed dozens of people, burned thousands of homes and other structures, caused the evacuation of hundreds of thousands of people, and are estimated to cost the state upwards of \$80 billion a year.

Low income communities of color continue to suffer the most extreme impacts of climate disasters, underlying the environmental justice component of inaction. The nation and the world is in a climate emergency.

Extreme storm damage to refineries in Florida, Texas and along the Gulf Coast have caused price spikes in gasoline prices across the country. The volatility of fossil fuel prices will continue in a climate-disrupted future and will particularly impact low income residents.

Additionally, emissions from vehicles powered by fossil fuels and from production and refinement of fossil fuels contribute substantially to health problems for frontline communities living near freeways, oil drill sites and refineries. Disproportionately, the burden of dirty fuel energy is borne by low-income communities of color, while reductions in fossil fuel burning would have a measurable impact on asthma-induced emergency room visits across.

To drastically reduce greenhouse gas emissions, countries such as Great Britain, India, China and Germany have already set an end date on the sales of gasoline and diesel powered passenger vehicles. Due to the short-term climate emission dangers posed by methane leaks associated with natural gas extraction, the sale of natural gas vehicles should be included in any ban.

Furthermore, automobile manufacturers such as Audi and Volvo are moving toward all-electric vehicle (EV) sales and General Motors, Ford, Land Rover and BMW are introducing new lines as well. A healthy secondary electric vehicle market is already making EVs more affordable than ever.

If the City is to continue to thrive and play a role as an international leader in climate action, all efforts must be made to reduce greenhouse gas emissions in every sector, including transportation, as soon as possible. In order to protect and promote the health of its residents, the City should make all efforts to reduce exposure to toxic emissions from freeways, oil drill sites and refineries.

#### FISCAL IMPACTS OF RECOMMENDATION

To be determined.

#### ENVIRONMENTAL SUSTAINABILITY

The Berkeley City Council unanimously passed the Climate Emergency Declaration in June 2018, and has a record of passing legislation to protect our climate. It is important, now more than ever to take the next step to insure that we are prepared and ready for the climate crisis we will face.

#### CONTACT PERSON

Cheryl Davila  
Councilmember, District 2  
510.981.7120  
[cdavila@cityofberkeley.info](mailto:cdavila@cityofberkeley.info)

#### ATTACHMENTS:

1. Resolution

RESOLUTION NO. XXXX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BERKELEY IN SUPPORT OF INTRODUCING AN ORDINANCE TERMINATING THE SALE OF GASOLINE, DIESEL, NATURAL GAS VEHICLES THROUGHOUT THE CITY OF BERKELEY BY 2025

WHEREAS, The Berkeley City Council unanimously passed the Climate Emergency Declaration on June 12, 2018; and

WHEREAS, the cities of Richmond, Oakland, Hayward, Alameda, El Cerrito, Chico, Fairfax, Healdsburg, Davis, Arcata, Cloverdale, Malibu, Petaluma, San Jose, San Mateo County, Santa Cruz City & County, Sonoma County and Windsor have also passed Climate Emergency Declarations; and

WHEREAS, There are over 48 cities throughout the United States who have declared, as well as over 1180 governments and 23 countries throughout the world. The declaration is the first step; and

WHEREAS, As unprecedented winter wildfires and ensuing mudslides destroyed parts of our City and region, a climate emergency mobilization of our City has never been more fiercely urgent; and

WHEREAS, Such an effort must end to the maximum extent technically feasible city-wide greenhouse gas emissions in every sector by 2025 and begin a large-scale effort to safely and justly remove carbon from the atmosphere; and

WHEREAS, Without an immediate and drastic change from the status quo, humans will cause irreversible and ever-worsening damage to the Earth's climate; and

WHEREAS, To act too late, or to be too cautious in our vision and do too little, carries the risk of condemning the City and its residents to an increasingly uninhabitable climate and potentially catastrophic economic losses caused by worsening disasters; and

WHEREAS, Abnormal wildfires, mudslides and other demonstrate that the climate emergency threatens everyone, the disasters wrought by an abruptly destabilizing climate have so far most devastatingly impacted lower-income communities of color first and worst. Drought, famine, and instability have devastated countries in the Global South; and

WHEREAS, Millions of climate refugees have already left their homes in search of a safe place to live. In the United States, we have seen after Hurricanes Katrina, Sandy, Harvey, Irma, Maria and Dorian how environmentally and economically vulnerable have been generally left to fend for themselves; and

WHEREAS, The City must therefore aggressively move to reduce and remove greenhouse gas emissions and adapt and restore ecosystems by rapidly adopting legislation to mandate such efforts Citywide and by doing so in such a way that lower-income and frontline communities of color benefit first from mitigation and adaptation funds. The City can thereby create a model for other cities to follow and use its global climate leadership standing to lead the way. By doing so, Berkeley can trigger a global mobilization to restore a safe climate, thereby creating the conditions for a future, not of chaos and misery, but of community and dignity; and

NOW, THEREFORE IT BE RESOLVED, that the Berkeley City Council directs the City Attorney be to prepare any draft ordinances to terminating the sale of gasoline, diesel and natural gas passenger vehicles by 2025; this shall include the termination of purchasing these vehicles to support City fleets and, for the general public, a staged phase out such as cars over \$28K by

2023, cars over \$22K by 2024, and all cars by 2025, so as to actively create a used electric vehicle market for lower income customers.

BE IT FURTHER RESOLVED, that the City Council directs the City Manager and Staff to be instructed to report to the Council in 90 days, in consultation with other City Departments on the feasibility of terminating the sale of gasoline, diesel and natural gas passenger vehicles throughout the city by 2025; this review should also include the termination of purchasing these vehicles to support City fleets and, for the general public, a staged phase out such as cars over \$28K by 2023, cars over \$22K by 2024, and all cars by 2025, so as to actively create a used electric vehicle market for lower income customers.

BE IT FURTHER RESOLVED, that the City Council directs all City Departments and proprietaries to report back on maximum emergency reductions in greenhouse gas emissions from their operations feasible by the end of 2025, with the highest priority on an equitable and just transition in all sectors; and

BE IT FURTHER RESOLVED, that the City Council directs the City Manager and/or Designee to report on ways to promote and facilitate the sale of all-electric vehicles in the City, particularly among low income communities, including the provision of local tax incentives and rebates; the simplification of building code requirements for chargers; and the establishment of charging stations and related infrastructure to support all-electric vehicles.

BE IT FURTHER RESOLVED, that the City Council directs the City Manager and/or Designee, in consultation with the Economic Development Department, be directed to report to Council in 90 days on any “just transition” elements related to the above action, including the impact and opportunities upon auto mechanics.



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.

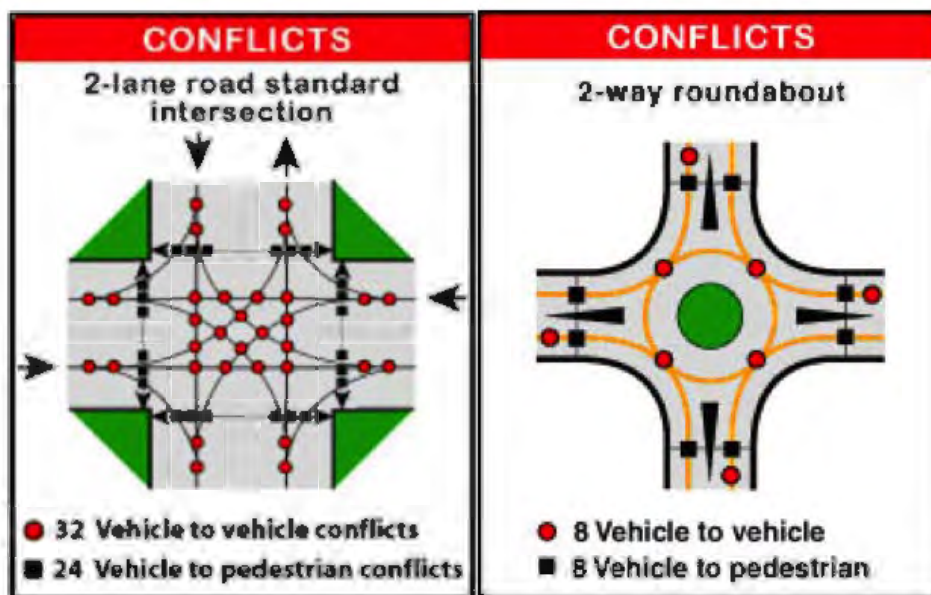
Refer to the City Manager:

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%<sup>1</sup> Seattle WA, which has more than 1,200 circles and adds 5 each year, reports a roughly 90% reduction in collisions.<sup>2</sup> Similarly, Madison WI reports an average decrease of 70%<sup>3</sup>. 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).<sup>4</sup>

<sup>1</sup> Lupfer, Patrick. “Neighborhood Traffic Circles - Intersection of South Street and Intervale Road in Brookline, MA” (Calm Streets Boston, April 24, 2012)

<sup>2</sup> Marek, John. “Neighborhood Mini Traffic Circles: Seattle Washington” a case study of Countermeasures on the webpages BIKESAFE (pedbikesafe.org)

<sup>3</sup> Neighborhood Traffic Management Plan (City of Madison WI, November 2004)

<sup>4</sup> 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<sup>5</sup> are also the City's most densely populated neighborhoods<sup>6</sup> 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<sup>7</sup>; and 3) increasing the tree canopy<sup>8</sup> and vegetation diversity in south-side areas. In light of the City's Declaration of a Climate Emergency<sup>9</sup> the Task Force wishes to emphasize that traffic circles contribute to the planted green space of our densely populated City neighborhoods.

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<sup>5</sup> For a map of Berkeley traffic circles, see Appendix B in the Vegetation Subcommittee Report, Attachment 3.

<sup>6</sup> [Population Density in Berkeley](#) (Zip Atlas)

<sup>7</sup> "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)

<sup>8</sup> 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.

<sup>9</sup> [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.<sup>10</sup> 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.

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<sup>10</sup> 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.**"<sup>11</sup> (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<sup>12</sup>) 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)

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<sup>11</sup> [Traffic Calming ePrimer – Module 3](#) (U.S. Department of Transportation/Federal Highway Administration)

<sup>12</sup> [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.**"*<sup>13</sup> (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*

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<sup>13</sup> [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)<sup>14</sup>*

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.”<sup>15</sup> (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

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<sup>14</sup> Ibid.

<sup>15</sup> [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<sup>16</sup>, 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<sup>17</sup>. 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).

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<sup>16</sup> [Motor Vehicle Crash Deaths: How is the US doing?](#) (Centers for Disease Control and Prevention)

<sup>17</sup> 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<sup>18</sup> 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.<sup>19,20</sup>

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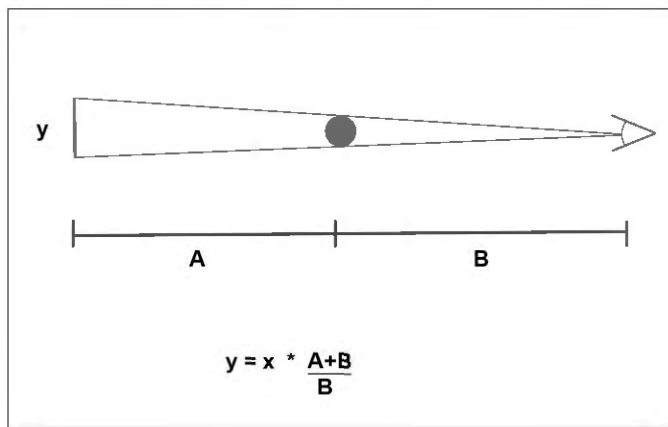
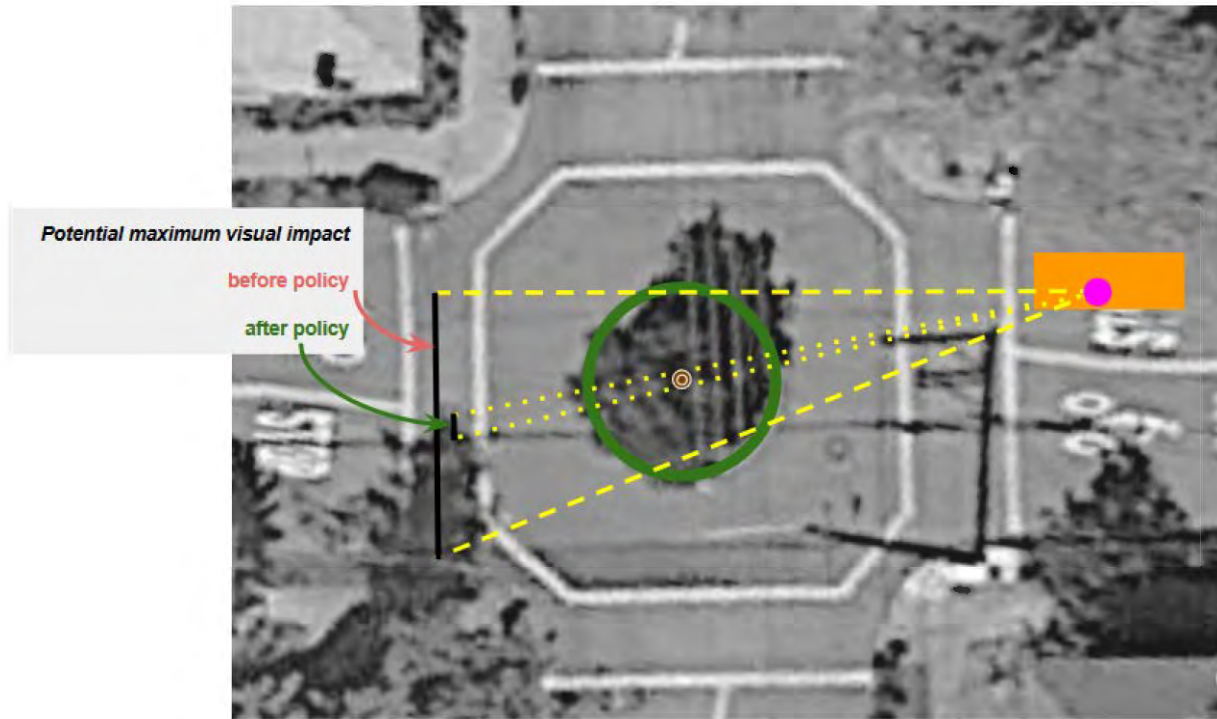
<sup>18</sup> By national standards it is assumed that drivers’ eyes are at three and a half feet and ability to see an object one foot tall on the ground.[cite?]

<sup>19</sup> 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.

<sup>20</sup> 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<sup>21</sup>, additional stop signs or traffic mirrors to increase visibility,<sup>22,23</sup> 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.

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<sup>21</sup> 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)

<sup>22</sup> <https://www.nationalsafetymirror.com/driveway-mirror-traffic-mirrors/>

<sup>23</sup> 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<sup>24</sup> 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.

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<sup>24</sup> 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<sup>25</sup>, 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<sup>26</sup>. 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

<sup>25</sup> [Motor Vehicle Crash Deaths: How is the US doing?](#) (Centers for Disease Control and Prevention)

<sup>26</sup> 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

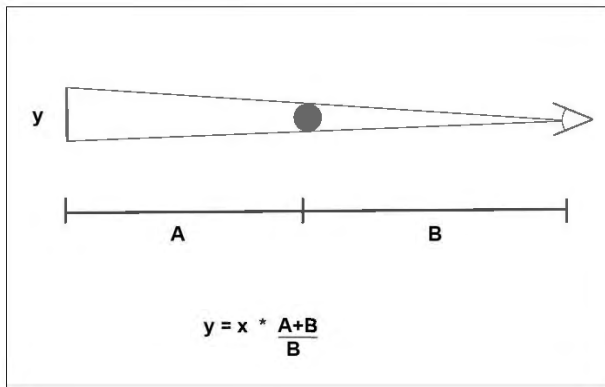
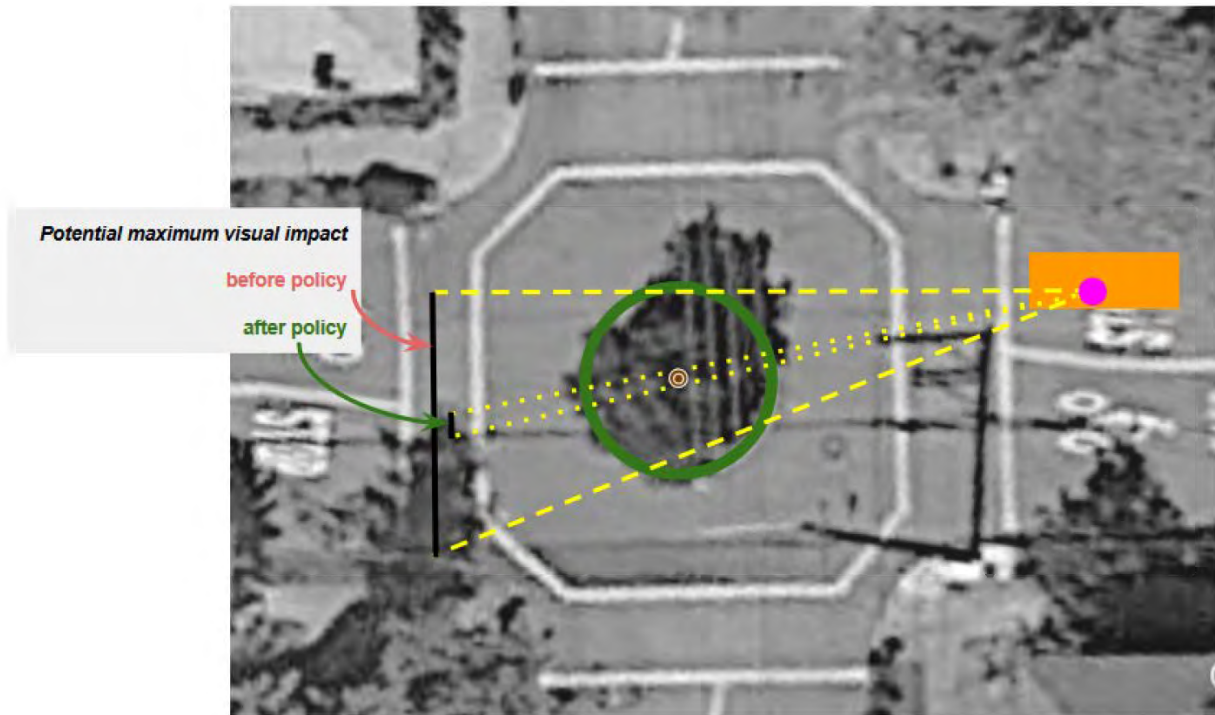
Visual sight lines – the unobstructed view of the driver<sup>27</sup> stopped before entering the near crosswalk to the corners of the opposite crosswalk [see illustration below] – should guide all vegetation selection and maintenance criteria. Based on the City of Berkeley's Traffic Engineer's opinion 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.<sup>2829</sup>

### Figure X. Traffic Circle Sightlines and Geometry

<sup>27</sup> 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.

<sup>28</sup> 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.

<sup>29</sup> 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<sup>30</sup>, diagonal diverters or flashing beacons to

<sup>30</sup> 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,<sup>31,32</sup> 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.

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

<sup>31</sup> <https://www.nationalsafetymirror.com/driveway-mirror-traffic-mirrors/>

<sup>32</sup> 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<sup>33</sup> 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.

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<sup>33</sup> 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

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;



RESUBMITTAL – CONSENT CALENDAR, February 26, 2019  
Traffic Circle Policy Task Force

- 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 8<sup>th</sup> 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

## 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.<sup>1</sup> [[See Map of Tree Coverage, below](#)~~Add image of Tree Canopy Map~~]

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<sup>1</sup> 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.<sup>2</sup>
- **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, belowAdd image of Design Guide](#)]<sup>3</sup>

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,

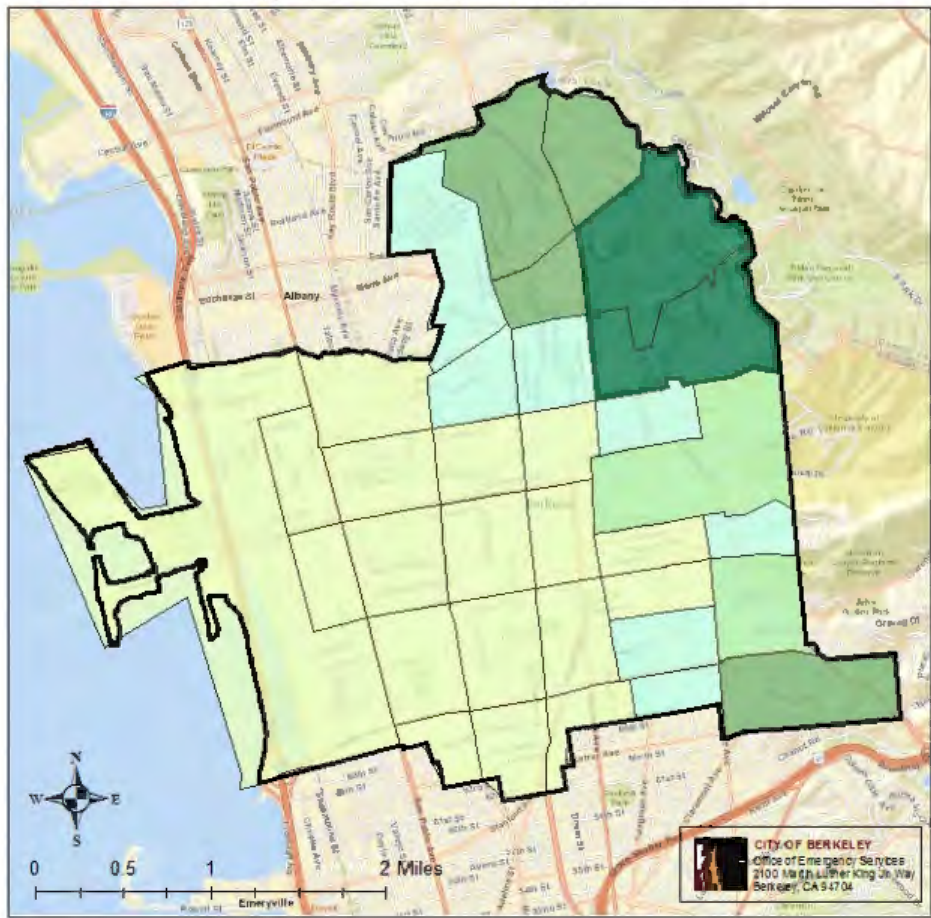
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<sup>2</sup> “A single mature tree can absorb as much as 48 lbs of carbon dioxide per year. Estimates are that between 660 and 990 million tons of carbon is stored in urban forests nationally.” (p. 31) Trees also improve quality of life through beautification.

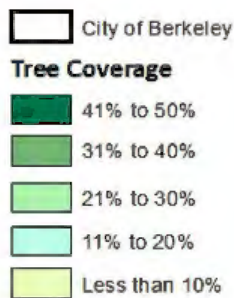
<sup>3</sup> As long as they are maintained to preserve sightlines, circles are a valuable tool in traffic calming on Bicycle Boulevards. They are especially effective when placed on concurrent intersection locations, helping to lessen the open feel of the road which reduces vehicle speeds. The Design 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.<sup>1</sup>

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

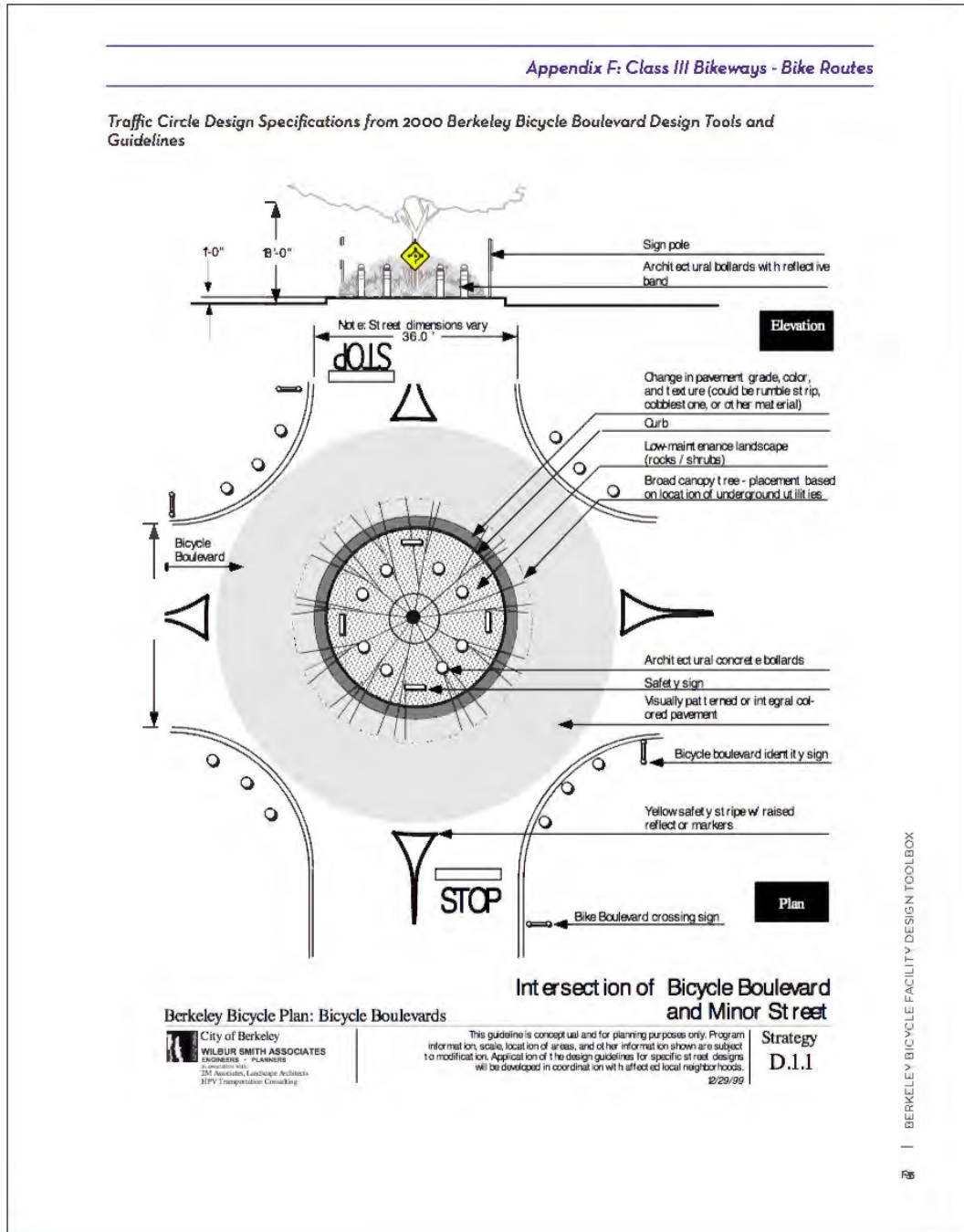


Source: Cal Adapt <https://cal-adapt.org/>  
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



*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.<sup>4</sup> 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,<sup>5</sup> 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.<sup>6</sup> These circles range from 100 to 300 feet in diameter and have daily traffic ranging from 10,000 to 14,000 vehicles.<sup>7</sup> 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

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<sup>4</sup> *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](https://www.postandcourier.com/news/roundabouts-spreading-like-kudzu-across-south-carolina-despite-some-opposition/article_06dc6030-3a4b-11e7-9dc8-93f0f4f8b236.html)

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

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

<sup>7</sup> *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<sup>8</sup> 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.<sup>9</sup>

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

<sup>9</sup> *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.<sup>10</sup> 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.<sup>11</sup>

### 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

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<sup>10</sup> *Traffic Calming In Berkeley, 1998 supra.*

<sup>11</sup> [https://safety.fhwa.dot.gov/speedmgt/traffic\\_calm.cfm](https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm)

installation construction budget<sup>12, 13</sup> 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.<sup>14</sup> 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.<sup>15</sup>

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.

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<sup>12</sup> See records of City Transportation Commission and Transportation Division files.

<sup>13</sup> 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).

<sup>14</sup> Map is in the appendix

<sup>15</sup> <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.<sup>16</sup> 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.<sup>17</sup>

## 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.<sup>18</sup> 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

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<sup>16</sup> [https://en.wikipedia.org/wiki/University\\_of\\_California,\\_Berkeley\\_oak\\_grove\\_controversy](https://en.wikipedia.org/wiki/University_of_California,_Berkeley_oak_grove_controversy)

<sup>17</sup> <https://www.berkeleyside.com/2018/08/28/berkeley-disciplines-developer-after-redwood-trees-chopped-down>

<sup>18</sup> <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.”<sup>19</sup> 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 Nations 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.<sup>20</sup>

### 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.<sup>21</sup> For this reason, the vegetation subcommittee recommends that speeds in traffic circles be reduced to 15 miles per hour.

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<sup>19</sup> <https://www.berkeley.edu/news/multimedia/2004/01/trees.html>

<sup>20</sup> <https://science.sciencemag.org/content/365/6448/76>

<sup>21</sup> “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.<sup>22</sup> 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**

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<sup>22</sup> [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<sup>1</sup> 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 <sup>W</sup>	Allowed <sup>W</sup>	Robust Adopt-a-Circle program that promotes adoption and maintenance of circles, including a clickable Google Map. <a href="#">In July 2018 Striving to become the</a> 1st city in MT to <a href="#">become a</a> National Wildlife Federation certified “Community <a href="#">Wildlife Habitat™</a> ”.
2	Tucson AZ	36in <sup>P</sup>	14ft <sup>O</sup> (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 <sup>O</sup>	Allowed <sup>O</sup>	Robust SF Better Streets Program. Multiple trees allowed: <15’ dia. 1 tree >15’ dia. 2+ trees
4	Boulder CO	30in <sup>W</sup>	8ft <sup>W</sup>	Sight line specs from Municipal Code 9-9-7 for Sight Triangles
5	Pasadena CA	30in <sup>E</sup> (from street)	7ft <sup>E</sup>	No yield control, Stop signs at each corner.
6	Seattle WA	24in <sup>W</sup>	Allowed <sup>P</sup>	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 <sup>W,P</sup>	14ft <sup>P</sup> (if extends beyond edge of circle)	Focus on native vegetation
8	Vancouver Canada	24in <sup>O,E</sup>	--	Robust Green Streets Program that promotes adoption and maintenance of circles, includes a list of recommended plants.
9	Columbus OH	--	Allowed <sup>P</sup>	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.” <sup>W</sup> Only deciduous trees allowed (for limbing up), no evergreens.
11	Arlington VA	--	14ft <sup>O</sup> (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



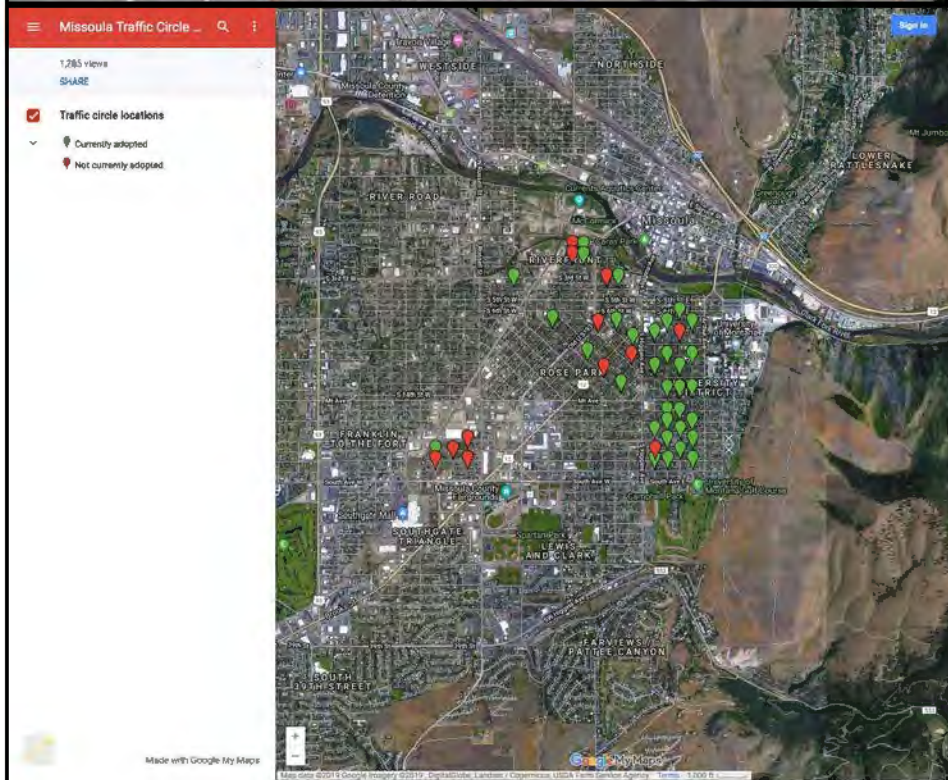
Vancouver BC



Tucson AZ



# Missoula MT



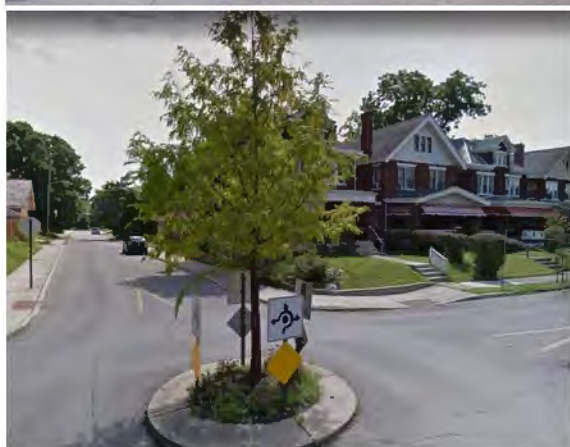
Map of Missoula's Adopt-a-Circle program. Illustrating adopted circles and those which are available to be adopted.

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.

10-15 MPH

Driver's peripheral vision  
Stopping distance  
Crash risk



20-25 MPH

Driver's peripheral vision  
Stopping distance  
Crash risk



30-35 MPH

Driver's peripheral vision  
Stopping distance  
Crash risk



40+ MPH

Driver's peripheral vision  
Stopping distance  
Crash risk

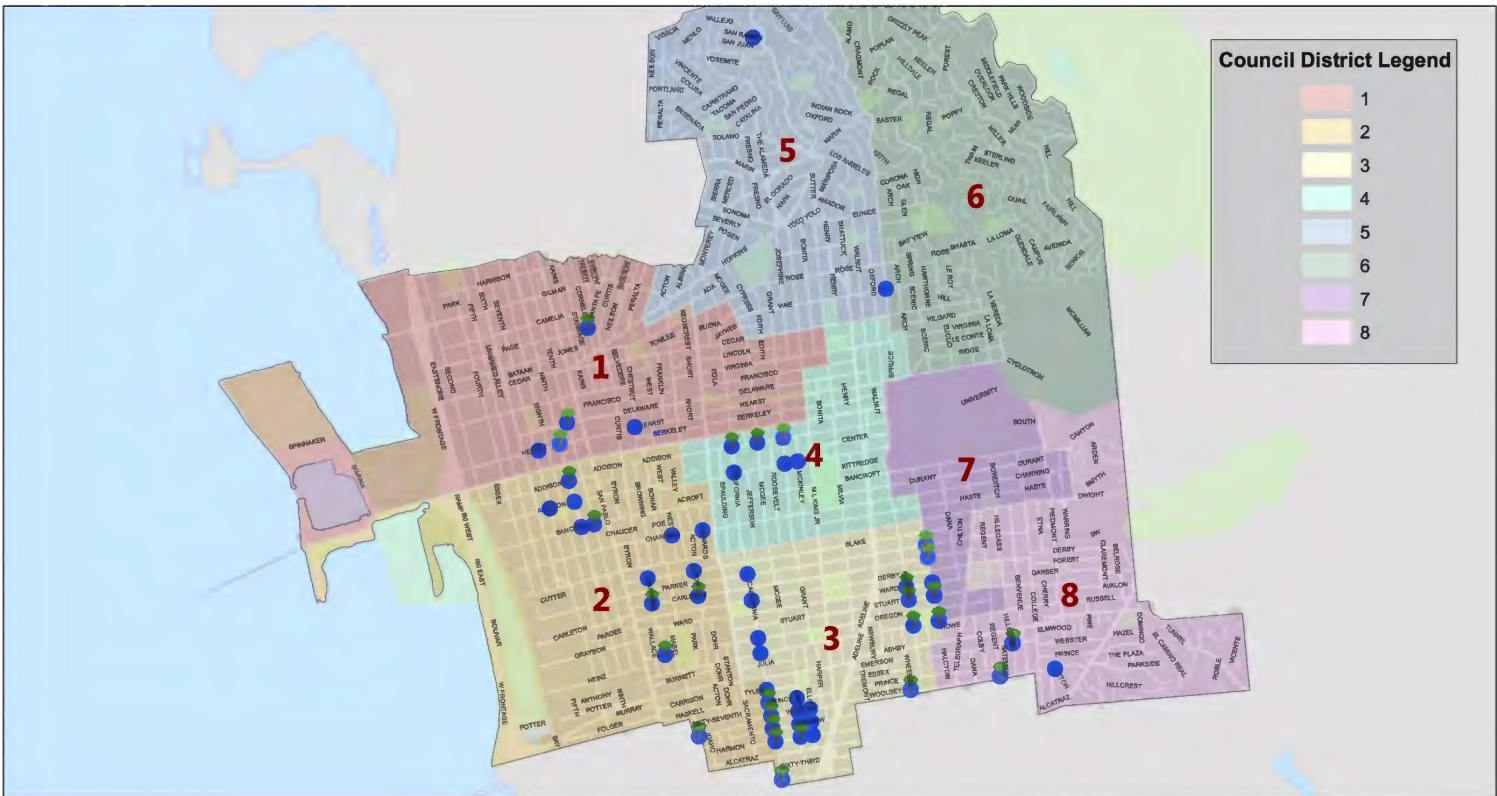


As a driver's speed increases, his peripheral vision narrows severely.<sup>2</sup>

*Driver's peripheral vision at different speeds.*

**Source:** [Urban Street Design Guide](#). Design Speed. (NACTO 2013)

B. Map of Traffic Circles in Berkeley



 <p><b>City of Berkeley Traffic Circles</b> By Council Districts</p> <p><small>Map produced by Matt Colwell &amp; Brian Liang, Public Works Department, Transportation Division</small></p>	<p><b>Legend</b></p> <p> <b>Traffic Circles</b>      <b>Trees</b></p>			 <p>Miles 0     0.5     1</p>

Updated: 08/27/2016

## 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 trees 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 woolly 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
<b>Apricot Monkeyflower Bush</b>	-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.
<b>Bush Monkeyflower 'Pt Molate'</b>	-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.
<b>California Aster</b>	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.
<b>California Fuchsia</b>	Zauschneria or Epilobium canum (low growing selections, <a href="#">such as 'Everett's Choice'</a> or <a href="#">'Select Mattole'</a> )	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.
<b>California Lilac</b>	ex. Ceanothus hearstiorum - San Simeon Ceanothus (low growing selections )	-3"-6" ht x 6 ft wide	<a href="#">Many species and varieties, choose low growing selections. Ceanothus hearstiorum is flat growing, with dark green crinkled leaves and 1"deep blue flower clusters in the spring.</a>
<b>Coyote Mint</b>	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.
<b>Douglas Iris</b>	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.
<b>Fragrant Pitcher Sage</b>	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.
<b>Island Alum Root</b>	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.
<b>Hummingbird Sage</b>	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.
<b>Manzanitas</b>	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.
<b>Red Buckwheat</b>	Eriogonum grande var. rubescens	12" ht x 2-3ft wide	<a href="#">Late blooming October</a> , short growing. Drought tolerant, attractive to butterflies and bees.
<b>Seaside Buckwheat</b>	Eriogonum latifolium	1ft <a href="#">ht</a> 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.
<b>Sulphur Buckwheat</b>	Eriogonum umbellatum	1ft <a href="#">tall-ht</a> 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.
<b>Western Sword Fern</b>	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.
<b>Western Yarrow</b>	Achillea millefolium	1-4ft ht x 2-3ft wide Will need pruning if growth gets too high. <a href="#">Choose low growing cultivars.</a>	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.
<b>Yerba Buena</b>	Clinopodium douglasii	2" <a href="#">ht-in-tall</a> 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

<b>Under Construction</b>				
Plant	Scientific Name	Height	CaNa	Notes
<b>Blanket Flower</b>	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.
<b>Blue Thimble Flower</b>	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.
<b>Borage</b>	Borago officinalis	2-3ft ht x 1-2ft wide		Annual Herb, reseeds, Spring to summer bloom of star shaped Clear Blue flowers. Poor soil, drought tolerant Mediterranean_Edible.
<b>Calamint</b>	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.
<b>California Aster</b>	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.
<b>California Buckwheat</b>	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.
<b>California Lilac</b>	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).
<b>California- Lilac Low Blue Blossom</b>	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.
<b>California Poppy</b>	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.
<b>Coyote Mint</b>	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.
<b>Fernleaf Carpet Tickseed</b>	<i>Bidens ferulifolia</i>	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.
<b>Frikart's Aster</b>	<i>Aster x frikartii</i> '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.
<b>Hairy Gumplant</b>	<i>Grindelia hirsutula</i>	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. <i>G. stricta</i> . Similar, lower growing.
<b>Hummingbird Mint</b>	<i>Agastache</i> 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
<b>Lavender</b>	<i>Lavandula</i> 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.
<b>Manzanitas</b>	Low growing selections (ex. <i>Arctostaphylos</i> 'Emerald Carpet', <i>Arctostaphylos edmundsii</i> 'Carmel Sur', <i>Arctostaphylos uva ursi</i> '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.
<b>Pot Marigold</b>	<i>Calendula officinalis</i>	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.
<b>San Miguel Island Buckwheat</b>	<i>Eriogonum grande</i> var. <i>rubescens</i>	12" ht x 2-3ft wide	Ca Native	Low growing. Drought tolerant, attractive to butterflies and bees. Red pink pom pom clusters Summer bloom.
<b>Sea Holly</b>	<i>Eryngium</i> 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.
<b>Seaside Buckwheat</b>	<i>Eriogonum latifolium</i>	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.

<b>Squash</b>	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.
<b>Sulphur Buckwheat</b>	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.
<b>Tickseed</b>	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
<b>Tidy Tips</b>	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.
<b>Toadflax</b>	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.
<b>Wayne Roderick Daisy</b>	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 <u>tolerant</u> . Better with some summer water.
<b>Western Yarrow</b>	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

<b>Under Construction</b>					
Plant	Nectar Or HOST	Scientific Name	Height	CaNa	Notes
<b>Apricot Monkey-flower Bush</b>	-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, <a href="#">but</a> better with a little <a href="#">water</a> . Attracts hummingbirds. Host plant for Checkerspot and Buckeye Butterflies.
<b>Pincushion Flower 'Butterfly Blue'</b>	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.
<b>California Aster</b>	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.
<a href="#">California Lomatium</a>	<a href="#">Larval Host</a>	<a href="#">Lomatium californicum</a>	<a href="#">1ft ht x 1ft wide, narrow flower stalk 30" ht</a>	<a href="#">Ca Native</a>	<a href="#">Forms clumps of beautiful ferny blue green leaves. Looks like celery. No irrigation once established, Anise Swallowtail Butterfly host plant.</a>
<b>California Lilac Low Blue Blossom</b>	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.
<b>California Showy Milkweed</b>	<a href="#">Larval Host and nectar Nectar &amp; Host</a>	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.
<b>Checker-bloom</b>	<a href="#">Nectar &amp; Host</a>	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.

<b>Coyote Mint</b>	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.
<b>De la Mina Verbena</b>	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.
<b>Dill</b>	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.
<b>Fernleaf Carpet Tickseed</b>	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.
<b>Frikart's Aster</b>	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.
<b>Frogfruit Lippia</b>	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.
<b>Grasses</b>	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)
<b>Lovage</b>	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.
<b>Narrow leaved Milkweed</b>	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.
<b>Narrowleaf Plantain</b>	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.

<b>Nasturtium</b>	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.
<b>Parsley</b>	Larval Host	Petroselinum crispum	10" ht x 1ft 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.
<b>Pellitory</b>	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.
<b>Red Buckwheat</b>	Nectar & Host	Eriogonum grande var. rubescens	12" ht x 2-3ft wide	Ca Native	<a href="#">Long blooming October</a> , short growing. Drought tolerant, Larval host for Lycaenid butterflies.
<b>Seaside Buckwheat</b>	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.
<b>Sulphur Buckwheat</b>	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.
<b>Toadflax</b>	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.
<b>Western Yarrow</b>	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.
<b>Yampah spp.</b>	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)  
<https://www.larnerseeds.com/store/term/wildflower-seed-mixes>

UNDER CONSTRUCTION

### Suggested Wildflower Plants

<u>Plant</u>	<u>Scientific Name</u>	<u>Height</u>	<u>CaNa</u>	<u>Notes</u>
<u><a href="#">Azalea flowered Monkeyflower</a></u>	<u><a href="#">Diplacus grandiflorus</a></u>	<u><a href="#">1-2ft ht x 2ft wide</a></u>	<u><a href="#">Ca Native</a></u>	<u><a href="#">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.</a></u>
<u><a href="#">Bolander's Phacelia</a></u>	<u><a href="#">Phacelia bolanderi</a></u>	<u><a href="#">1ft ht x 0.5ft wide</a></u>	<u><a href="#">Ca Native</a></u>	<u><a href="#">Papery inch wide lavender flowers late spring thru summer. Perennial groundcover, appreciates some summer water and some shade. Bee pollen and nectar source.</a></u>
<u><a href="#">California Fuchsia</a></u>	<u><a href="#">Zauschneria or Epilobium canum</a></u> Use Low growing selections such as 'Everett's Choice' or 'Cloverdale'	<u><a href="#">1-2ft x 2-3ft wide</a></u>	<u><a href="#">Ca Native</a></u>	<u><a href="#">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.</a></u>
<u><a href="#">California Poppy</a></u>	<u><a href="#">Eschscholzia californica</a></u>	<u><a href="#">1-1.5ft ht x 1ft wide</a></u>	<u><a href="#">Ca Native</a></u>	<u><a href="#">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.</a></u>
<u><a href="#">Coast Gum Plant</a></u>	<u><a href="#">Grindelia stricta platyphylla</a></u>	<u><a href="#">6" ht x 2-3ft wide</a></u>	<u><a href="#">Ca Native</a></u>	<u><a href="#">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.</a></u>
<u><a href="#">Douglas Iris</a></u>	<u><a href="#">Iris douglasiana and hybrids and selections (ex. 'Canyon Snow' Iris Pacific Coast Hybrid)</a></u>	<u><a href="#">1ft ht x eventually 3ft wide (Canyon Snow)</a></u>	<u><a href="#">Ca Native</a></u>	<u><a href="#">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.</a></u>

<a href="#"><u>Dwarf Lupine</u></a>	<a href="#"><u>Lupinus nanus</u></a>	<a href="#"><u>12-18" ht x 1ft wide</u></a>	<a href="#"><u>Ca Native</u></a>	<a href="#"><u>Also called Sky Lupine. Annual wildflower that turns California fields blue in the spring. Reseeds. Seeds need moisture to germinate.</u></a>
<a href="#"><u>Fairyfan Farewell-to-Spring</u></a>	<a href="#"><u>Clarkia williamsonii</u></a>	<a href="#"><u>12-14" ht x 12" wide</u></a>	<a href="#"><u>Ca Native</u></a>	<a href="#"><u>Magenta blotched lavender pink silky cup shaped flowers in late Spring into Summer. Annual that reseeds. Needs good drainage. Appreciates a little supplemental water.</u></a>
<a href="#"><u>Great Valley Phacelia</u></a>	<a href="#"><u>Phacelia ciliata</u></a>	<a href="#"><u>16" ht x 16" wide</u></a>	<a href="#"><u>Ca Native</u></a>	<a href="#"><u>Beautiful self sowing annual. Clusters of cupped lavender blue flowers over ferny foliage. Good for bees.</u></a>
<a href="#"><u>Red Buckwheat</u></a>	<a href="#"><u>Eriogonum grande var. rubescens</u></a>	<a href="#"><u>12" ht x 2-3ft wide</u></a>	<a href="#"><u>Ca Native</u></a>	<a href="#"><u>Low growing perennial. Drought tolerant, attractive to butterflies and bees. Red-pink pom pom clusters of flowers summer thru fall.</u></a>
<a href="#"><u>Sulphur Buckwheat</u></a>	<a href="#"><u>Eriogonum umbellatum</u></a>	<a href="#"><u>1-3ft ht x 2 ft wide, can mound high, may need pruning to keep lower</u></a>	<a href="#"><u>Ca Native</u></a>	<a href="#"><u>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.</u></a>
<a href="#"><u>Western Yarrow</u></a>	<a href="#"><u>Achillea millefolium</u> <a href="#"><u>Choose low growing selections like 'Salmon Beauty' Yellow 'Moonshine' or white 'Sonoma Coast'</u></a></a>	<a href="#"><u>1-2ft ht x 2ft wide</u></a>	<a href="#"><u>Ca Native</u></a>	<a href="#"><u>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.</u></a>

### E. Pruning Standards & Guidelines:

[https://sfenvironment.org/sites/default/files/fliers/files/sfe\\_uf\\_pruning\\_guide.pdf](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.

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**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.

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**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.]

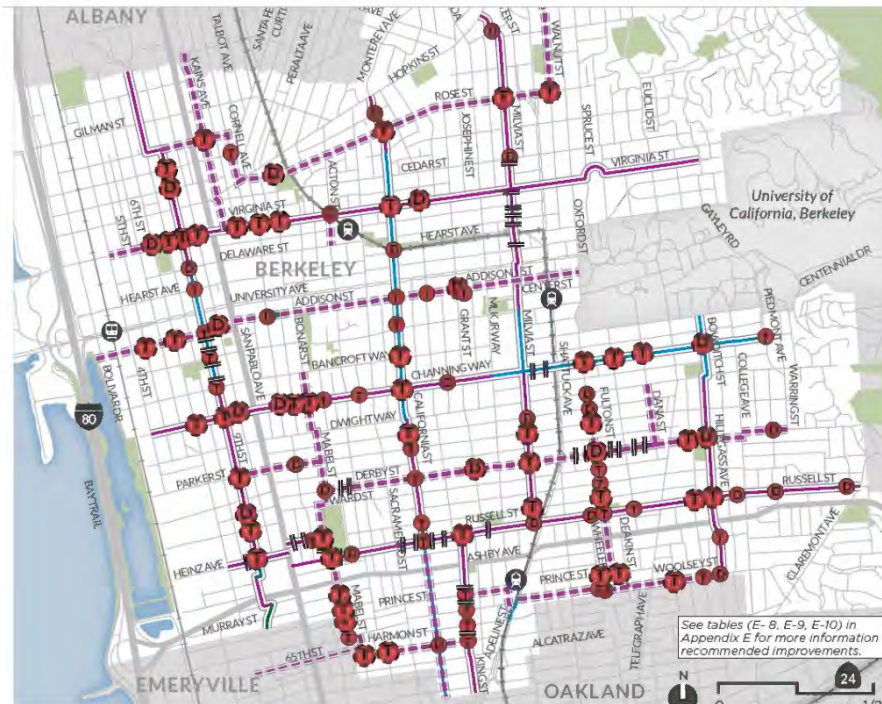
As envisioned in the 1977 Master Plan, bicycles continue to be an important mode of transportation in Berkeley. In 1990, about 5% of employed Berkeley residents commuted by bicycle and many residents use bicycles for recreation and personal tasks. Students also use bikes to get to school. In 2000, the 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)**



**TRAFFIC CALMING IMPROVEMENTS**

- TRAFFIC CIRCLE
- TRAFFIC DIVERTER

**EXISTING TRAFFIC CALMING FACILITIES**

- TRAFFIC CIRCLE
- SPEED HUMP
- TRAFFIC DIVERTER

**NETWORK IMPROVEMENTS**

- BICYCLE BOULEVARD [3E]
- PAVED PATH [1A]
- STANDARD BIKE LANE [2A]
- BICYCLE BOULEVARD [3E]
- PARK/REC
- RAILROAD
- BART STATION
- AMTRAK STATION

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/Ban-croft/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
<b>Total cost</b>			<b>\$900,000</b>

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.

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## 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.

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## 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 new 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. Do we need stop signs for traffic circles? Or maybe a dual sign: "Stop & Yield."
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 (BFPF) 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 BFPF 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:

*Proposal to Establish an “Adopt a Spot” Program in City of Berkeley*

[www.Oaklandadoptaspot.org](http://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 Berkeley’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



*Proposal to Establish an “Adopt a Spot” Program in City of Berkeley*

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/1UphXhPsn0BtVsquidYnZDfcirO7xvt1sUnh-OoCj28/viewform?c=0&w=1&usp=send\\_form](https://docs.google.com/forms/d/1UphXhPsn0BtVsquidYnZDfcirO7xvt1sUnh-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 BFPF and the Berkeley 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 pickups 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

*Proposal to Establish an "Adopt a Spot" Program in City of Berkeley*

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](http://www.oaklandcreektobay.org) and [www.oaklandearthday.org](http://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?*

*Proposal to Establish an "Adopt a Spot" Program in City of Berkeley*

**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 Berkeley 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 “cocoon” for each egg laid.

### Bay Area Gardening

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.



Community Environmental  
Advisory Commission

**04**

ACTION CALENDAR  
April 14, 2020

To: Honorable Mayor and Members of the City Council  
From: Community Environmental Advisory Commission  
Submitted by: Ben Gould, Chairperson, Community Environmental Advisory Commission  
Subject: 100% Sustainable Trips by 2045

RECOMMENDATION

Adopt the attached Resolution, setting a goal of achieving 100% of trips taken by sustainable modes by 2045, and refer to the Community Environmental Advisory Commission, the Energy Commission, and the Transportation Commission to develop relevant proposals and recommendations for accomplishing that goal.

FISCAL IMPACTS OF RECOMMENDATION

Potential for some additional staff time required to serve commission meetings.

CURRENT SITUATION AND ITS EFFECTS

Berkeley envisions a radically different city within the next 30 years: a future in which every car, truck, bus, and motorcycle on Berkeley streets run on clean, renewable resources.

This fossil-fuel free city won't invent itself. However, given current trajectories, it is clear that Berkeley requires aggressive policy approaches to phase out the use of fossil fuels for transportation and re-envision the way we get around our city. Berkeley must explore aggressive and transformative approaches to solve our linked transportation and climate crises.

Setting the goal of 100% sustainable trips by 2045 aligns with Berkeley's Strategic Plan, advancing the goal to be a global leader in addressing climate change, advancing environmental justice, and protecting the environment.

At a regular meeting on Thursday, November 14, 2019, the Community Environmental Advisory Commission unanimously approved a motion to send the *100% Sustainable Trips by 2045* recommendation to City Council (M/S/C Hetzel, Gould. Ayes: Simmons, Varnhagen, Hetzel, De Loen, Goldhaber, Gould. Abstained: None. Absent: Ticconi).

## BACKGROUND

In June 2018, the Berkeley City Council unanimously declared a state of Climate Emergency. Coupled with a resolution to become a Fossil Fuel Free city and subsequent goals of carbon neutrality, Berkeley has officially acknowledged the need for robust social change—one that can only be facilitated by an equally robust policy response. Moreover, with the clear disconnect between state, federal, and even international approaches towards the climate crisis, it is clear that local governance ought to take a greater role in actively finding, drafting, and implementing solutions.

As such, since June 2019, the Community Environmental Advisory Commission has workshopped various sustainable mobility measures in order to address this local concern. These proposals rise to the challenge of inventing new visions for a sustainable future, ranging from eliminating the sale of gasoline within City limits to a wholesale prohibition on the operation of fossil-fuel powered vehicles on City streets.

In neighboring San Francisco, which has had a long legacy of transit-first policy and recently reached over 50% of trips taken by sustainable modes, Mayor London Breed has set the goal of achieving 100% of trips taken by sustainable modes – walking, biking, transit, and EVs – by 2040.

## ENVIRONMENTAL SUSTAINABILITY

Moving 100% of trips to sustainable modes by 2045 will have significant environmental benefits if achieved, reducing Berkeley's greenhouse gas emissions by over 60% from a 2019 baseline and positioning the City to achieve the voter-mandated target of an 80% reduction below 1990 levels by 2050.

## RATIONALE FOR RECOMMENDATION

As things currently stand, Berkeley is extremely unlikely to meet its carbon reduction and fossil-free goals without aggressive action on transportation decarbonization and investment in sustainable mobility alternatives.

Adopting this goal will empower City commissions and staff to develop and propose more aggressive solutions that are effectively targeted to the scale of the problem.

## ALTERNATIVE ACTIONS CONSIDERED

None.

## CITY MANAGER

The City Manager takes no position on the content and recommendations of the Commission's Report.

CONTACT PERSON

Ben Gould, Chair, Community Environmental Advisory Commission, 510-725-9176

Attachments: Resolution

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

100% Sustainable Trips by 2045

WHEREAS, concentrations of greenhouse gases (GHGs) continue to reach new records and are at some of the highest levels in the millennia; and

WHEREAS, the latest analysis from the Global Atmosphere Watch program of the World Meteorological Organization shows that globally averaged surface mole fractions for carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) reached new highs in 2017, with CO<sub>2</sub> at 405.5 ± 0.1 ppm, CH<sub>4</sub> at 1859 ± 2 ppb, and N<sub>2</sub>O at 329.9 ± 0.1 ppb—these values constituting, respectively, 146%, 257% and 122% of preindustrial levels; and

WHEREAS, carbon dioxide is the single most important anthropogenic GHG in the atmosphere, primarily because of emissions from combustion of fossil fuels; and

WHEREAS, the current climate crisis leads to sudden climate risks: floods, drought, extreme weather (including hurricanes and cyclones, torrential rains, storm surges, sand and dust storms, heatwaves, wild fire and cold spells), landslides and glacial lake outburst floods; and

WHEREAS, there are also slow onset impacts: higher temperatures, sea level rise, rainfall variability, reduced river flows, changing seasonal patterns, changes in species distribution, invasive species, changes in disease distribution, soil and coastal degradation, erosion, desertification, ocean acidification, coral bleaching, salt water intrusion, changes in ocean circulation patterns, and glacier or permafrost melting; and

WHEREAS, such hazards, together with other factors, create a pattern of vulnerability expected to affect all economic sectors, in particular water resources, agriculture, ecosystems, health and forestry; and

WHEREAS, while most sectors made similar percentage contributions to the GHG emission growth in 2010 and 2016, global transport emissions experienced disproportionate growth; and

WHEREAS, according to the U.S. Energy Information Administration, transportation (which includes cars, trucks, trains, etc.) has now eclipsed electric power sector as the largest emitter of CO<sub>2</sub> at 1.9 billion tons annually; and

WHEREAS, while the global market share for electric vehicles (EVs) is still small, with 3 million sales in 2017, a multi-layered policy package comprised of financial incentives and behavioral incentives (e.g. allowing EV drivers to use bus lanes and free public parking) contributed to higher EV sales in Norway; and

WHEREAS, nationally and locally, core climate policies are not in place, existing carbon rates are too low and inconsistent, and broad fiscal systems are not well aligned with decarbonization; and

WHEREAS, in recent years, political attention has been acknowledging the increasingly important role of nonstate and subnational actors such as cities, regions, civil society organizations, and local governance; and

WHEREAS, while Berkeley City Council unanimously declared a state of Climate Emergency in June 2018; and

WHEREAS, Berkeley has passed a resolution to become a Fossil Fuel Free City with a goal of carbon neutrality; and

WHEREAS, the City of Berkeley Climate Action Plan has commendable goals of 33% reduction in greenhouse gases compared to 2000 by 2020 and 80% reduction by 2050; and

WHEREAS, the December 7, 2017 report from City staff showcase that there was only a 12% reduction as of 2015, indicating that the City is well behind in achieving both its 2020 and 2050 goals; and

WHEREAS Berkeley's Strategic Plan sets the goal of being a global leader in addressing climate change, advancing environmental justice, and protecting the environment, it will be unlikely at this current trajectory; and

WHEREAS, the price of inactivity is only rising as harms are only exacerbated, showcasing the need to act with urgency; and

WHEREAS, several studies provide estimates of the global emission reductions that could be achieved, if existing good practice policies were replicated universally; and

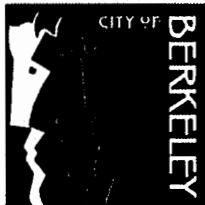
WHEREAS, the City and County of San Francisco has adopted the goal of 100% of trips by sustainable modes by 2040;

NOW THEREFORE, BE IT RESOLVED by the Council of the City of Berkeley that the City is committed to ensuring 100% of trips which begin or end within Berkeley use sustainable modes – walking, bicycling, public transit, or electric vehicles – no later than 2045.

BE IT FURTHER RESOLVED that the City of Berkeley aims to achieve a zero-emission transportation sector no later than 2045.







**SOPHIE HAHN**  
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**RECEIVED AT  
COUNCIL MEETING OF:**

**MAR 05 2019**

**OFFICE OF THE CITY CLERK  
CITY OF BERKELEY**

To: Honorable Members of the City Council Facilities, Infrastructure,  
Transportation, Environment, & Sustainability (FITES) Policy Committee  
From: Vice Mayor Sophie Hahn  
Subject: Bright Streets Initiative  
Date: March 5, 2020

On February 6, 2020, the Facilities, Infrastructure, Transportation, Environment, & Sustainability (FITES) Policy Committee held a discussion on the Bright Streets Initiative, an item introduced by Vice Mayor Sophie Hahn and Councilmember Kate Harrison to address the many street markings, signs, and curbs throughout the City of Berkeley that have faded and/or fallen into disrepair.

At that time, the Committee discussed four areas for possible action:

1. Paint all crosswalks and all other street markings, clarify and/or improve traffic signage and paint curbs (and other elements such as lightpoles, utility boxes, etc.) on streets within a three-block radius of all Berkeley public schools, prior to August 17, 2020, the first day of the 2020-21 School Year;
2. In the near to medium-term, paint all crosswalks, midlines, bike lanes, and other street markings, clarify and/or improve traffic signage, and paint curbs along collector and arterial streets throughout Berkeley, prioritizing high-volume pedestrian areas and commercial districts;
3. Adopt and apply uniform design standards for painting crosswalks, midlines, bike lanes, and other street markings; and
4. Identify funding source(s) for completing this work.

On March 3, Vice Mayor Hahn met with Director of Public Works Phil Harrington to discuss all four of these areas for possible action. It was clarified that this item seeks a one-time "refreshment" of street markings and signage, using one-time funds. Once refreshed, existing funds for maintenance should be adequate to maintain markings, signage and other elements at a much higher level than is currently possible.

The following is CM Hahn's summary of the discussion; Director Harrington will provide clarifications, if any, at the FITES meeting (time was too short to circulate this memo for his review):

1. Completing the requested work around Public Schools by the end of the summer break should be possible with a combination of City crews and on-call contractors. Some funding for this work may already be available, but completing all of it will likely require a new allocation. We should consider possible funds which could be allocated in the AAO#2 or FY2021 budget processes. Mr. Harrington will work on rough estimates for completion of this work.
2. Completing work on additional streets is also possible, and could be done with one or a series of "one time" infusions of funding. The following prioritization was discussed:
  - a. Areas around public buildings with high foot traffic; Libraries, Senior Centers, Recreation Centers, etc.
  - b. Arterial streets; which also largely coincide with high injury corridors as well as Commercial Districts
  - c. Collector streetsBike boulevards and networks could also be considered for prioritization. Funding would need to be identified and allocated; work could be done over a few years.
3. Staff is already developing, and could and present to this Committee for review, design standards for City crosswalks and other street markings, taking into account both safety and aesthetics. Such standards would recognize that crosswalk design on high-volume corridors and commercial districts may differ from such designs in residential and other areas.
4. Possible funding sources would be similar to those being explored by the FITES Committee, including Gas Tax, Parking Fines and other sources.

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ACTION CALENDAR  
December 10, 2019

To: Honorable Members of the City Council  
From: Councilmembers Sophie Hahn and Kate Harrison  
Subject: Bright Streets Initiative

RECOMMENDATION

1. Refer to the City Manager to paint all crosswalks, midlines, bike lanes, and other street markings, clarify and/or improve traffic signage, and paint curbs along collector and arterial streets throughout the City of Berkeley, and within a three-block radius of all Berkeley public schools, to improve safety and support Vision Zero goals. Streets, signage, and curbs that have been redone in the past three years and remain in very good condition need not be repainted and/or replaced.
2. Such work to be completed prior to commencement of the 2020-21 Berkeley Public School Year.

BACKGROUND

In November 2011, the City Auditor provided an analysis of the conditions of Berkeley's 216 miles of streets that showed widespread disrepair resulting from years of underfunding. The impact of the many years of underfunding is compounded by the exponential increase in cost to refurbish streets that have reached "at risk" or "failed" status.

Although funds available for paving and street rehabilitation have increased since 2011, thanks in large part to voter-approved measures, they remain inadequate to maintain the street and road conditions necessary to ensure safety in the City of Berkeley.

In light of the City's limited paving budget, and the urgent need to move forward on the Berkeley Vision Zero Program's strategy to eliminate traffic fatalities and injuries, while increasing safe, healthy, equitable mobility for all, this item provides a rapid and less expensive, relatively easy-to-implement, measure to improve visibility of street markings and signage to guide vehicles, bicyclists, and pedestrians to promote orderliness and safety.

ENVIRONMENTAL SUSTAINABILITY

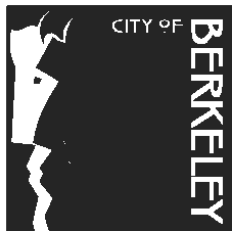
Improved street markings and signage leads to better fuel efficiency, and encourages people to walk or ride a bicycle rather than drive, and therefore will result in less greenhouse gas emissions from vehicles.

FISCAL IMPACTS

Funding for painting of crosswalks and curbs, and posting of signage, has already been allocated.

CONTACT INFORMATION

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Kate Harrison  
Councilmember District 4

ACTION CALENDAR  
December 10, 2019

To: Honorable Mayor and Members of the City Council  
From: Councilmembers Harrison and Hahn  
Subject: Adopt an Ordinance Adding a Chapter 11.62 to the Berkeley Municipal Code to Regulate Plastic Bags at Retail and Food Service Establishments

RECOMMENDATION

Adopt an ordinance adding a Chapter 11.62 to the Berkeley Municipal Code to regulate plastic bags at retail and food service establishments.

BACKGROUND

Californians throw away 123,000 tons of plastic bags each year, and much of it finds its way into regional and international waterways.<sup>1</sup> The situation is only getting worse with 18 billion more pounds of plastic added to the already colossal amount in our seas.<sup>2</sup> Today, there are 100 million tons of trash in the North Pacific Subtropical Gyre;<sup>3</sup> in some parts, plastic outweighs plankton 6 to 1.<sup>4</sup>

Legislative action at the state level has been successful in achieving reductions in plastic bag pollution. According to the 2018 Change the Tide report, restrictions on plastic bags such as that in effect in California have resulted in a “steady drop” in plastic grocery bags found on California beaches. Berkeley has also recently made substantial progress on its restriction of plastic litter in the city through the Single Use Foodware and Litter Reduction ordinance (BMC Chapter 11.64).<sup>5</sup> The ordinance restricts food providers from offering take-out and dine-in food in single-use disposable ware. These items include “containers, bowls, plates, trays, cartons, boxes, pizza boxes, cups, utensils, straws, lids, sleeves, condiment containers, spill plugs, paper or foil wrappers, liners and any

<sup>1</sup> Environment California, “Keep Plastic Out of the Pacific,” <https://environmentcalifornia.org/programs/cae/keep-plastic-out-pacific>.

<sup>2</sup> Division of Boating and Waterways, “The Changing Tide,” [http://dbw.parks.ca.gov/pages/28702/files/Changing%20Tide%20Summer%202018%20HQ%20\(1\).pdf](http://dbw.parks.ca.gov/pages/28702/files/Changing%20Tide%20Summer%202018%20HQ%20(1).pdf).

<sup>3</sup> The North Pacific Gyre, also known as the North Pacific Subtropical Gyre, is a system of ocean currents that covers much of the northern Pacific Ocean. It stretches from California to Japan and contains the Great Pacific Trash Patch, or Pacific trash vortex. National Geographic, “Great Pacific Garbage Patch,” <https://www.nationalgeographic.org/encyclopedia/great-pacific-garbage-patch/>.

<sup>4</sup> Environment California, “Keep Plastic Out of the Pacific,” <https://environmentcalifornia.org/programs/cae/keep-plastic-out-pacific>.

<sup>5</sup> Berkeley Municipal Code, Chapter 11.64 Single Use Foodware and Litter Reduction.

other items used to hold, serve, eat, or drink Prepared Food.”<sup>6</sup> Notably, plastic bags do not fall within the purview of the Single Use Foodware and Litter Reduction ordinance.

In order to take a further step in protecting the environment and reaching our zero waste goal, Berkeley must consider more aggressive action to close critical loopholes in state law with regard to plastic bags.

California currently prohibits the sale of plastic bags that fall into several categories, based on composition, intended use and business size and type. The statewide Single-Use Carryout Bag Ban prevents the sale of single-use plastic carryout bags in most large grocery stores, retail stores with a pharmacy, convenience stores, food marts, and liquor stores. Affected stores may offer reusable or recycled paper bags to a customer at the point of sale. Despite these restrictions, the law provides for the sale of plastic bags that are more than 2.25 mils thick in these stores, and exempts a number of key commercial establishments such as restaurants, general retailers, farmers markets, and other smaller businesses. State law also fully exempts plastic bags in grocery stores used for carrying produce from the shelf to the check stand.<sup>7</sup>

This proposed ordinance intends to expand the scope of existing regulation to further reduce plastic waste across these exempt categories, avoiding further destruction of the local, regional and global environment.

### **State Restrictions on Plastic Bags**

California’s legislature decided in 2014 to take a step to limit single-use plastic bag waste. Senate Bill 270 mandates that stores of a certain size and type offer only reusable bags at checkout and sets a minimum price of at least \$0.10.<sup>8</sup> As a result, thin film bags, known as t-shirt bags, are no longer available at larger retail and grocery stores.

The scope of state regulation includes minimum percentage of post-consumer recycled plastics the bag must include and banning plastic bags deemed adequate for only one use. The state defines single-use plastic bags as thin film bags—bags made out of flexible sheets of plastic usually of polyethylene resin. Legislation often distinguishes between single-use film bags and reusable ones based on their thickness, measured in mils—1 thousandth of an inch.

The ban however does not apply to other types of plastic bags deemed reusable or to smaller retailers and restaurants. Many plastic film bags, in particular, are still permitted under SB 270. They are permitted for sale as long as: the bags contain more than 20%

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<sup>6</sup> Berkeley Municipal Code Section 11.64.020D.

<sup>7</sup> Ban on Single-Use Carryout Bags (SB 270 / Proposition 67) Frequently Asked Questions, Office of the Attorney General and CalRecycle, April 2017, <https://www.calrecycle.ca.gov/Plastics/CarryOutBags/FAQ/>.

<sup>8</sup> California Legislature, Senate Bill 270,  
[https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201320140SB270](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201320140SB270)

post-consumer recycled material<sup>9</sup>; are recyclable in the state of California; are properly labeled as containing post-consumer recycled material; can carry over 22lb for a minimum of 175ft for at least 125 uses; and are at least 2.25 mils thick.

Despite the assumption of reusability, there is limited evidence to suggest that plastic bags are being repurposed to the degree accounted for by SB 270. Some studies suggest that fewer than 1% of people actually reuse the thicker and thus technically-reusable film bags.<sup>10</sup> This erroneous legislative assumption can be addressed at the local level.

Aside from SB 270, the only other legislation governing plastic bag usage in Berkeley is an Alameda County ordinance implementing SB 270 and local ordinances regulating the type of plastic allowed in food packaging.<sup>11</sup> By not addressing plastic produce bags and defining reusable bags as any film bag exceeding 2.25 mils, current regional and local law shares many of the shortcomings of state legislation.<sup>1213</sup>

### Local Restrictions on Plastic Bags

Contested but upheld in a 2016 ballot measure,<sup>14</sup> SB 270 set a statewide code that has been built upon by numerous local governments, including many in the Bay Area.

Palo Alto is one of the most recent cities to amend its municipal code and take the extra step in limiting the distribution of film bags. By splitting plastic bags into three categories by use—produce bags, checkout bags, and product bags—the city is able to differentiate regulation for each purpose. Its ordinance<sup>15</sup> bans grocery stores and farmers markets from packaging food in film bags, requiring instead the use of compostable plastics. For checkout, Palo Alto mandates that all stores only offer their customers recycled paper bags or reusable bags, a term it defines in accordance with California law as a bag thicker than 2.25 mils.

<sup>9</sup> In 2020, the percentage required will increase to 40% post-consumer recycled material.

<sup>10</sup> Save Our Shores, “Help Ban Plastic Bags,” <https://saveourshores.org/help-ban-plastic-bags/>

<sup>11</sup> Alameda County Waste Management Authority, “Ordinance Regulating the use of carryout bags and promoting the use of reusable bags,” <http://reusablebagsac.org/acwma-ordinance-2012-2-amended-ordinance-2016-2>.

<sup>12</sup> Berkeley Municipal Code Chapter 11.58 Prohibition of Chlorofluorocarbon-Processed Food Packaging, <https://www.codepublishing.com/CA/Berkeley/cqi/NewSmartCompile.pl?path=Berkeley11/Berkeley1158/Berkeley1158.html>.

<sup>13</sup> Berkeley Municipal Code Chapter 11.60 Polystyrene Foam, Degradable and Recyclable Food Packaging, <https://www.codepublishing.com/CA/Berkeley/cqi/NewSmartCompile.pl?path=Berkeley11/Berkeley1160/Berkeley1160.html>.

<sup>14</sup> Ballotpedia, “California Proposition 67, Plastic Bag Ban Veto Referendum (2016),” [https://ballotpedia.org/California\\_Proposition\\_67,\\_Plastic\\_Bag\\_Ban\\_Veto\\_Referendum\\_\(2016\)](https://ballotpedia.org/California_Proposition_67,_Plastic_Bag_Ban_Veto_Referendum_(2016))

<sup>15</sup> Palo Alto Municipal Code, “Chapter 5.35 Retail and Food Service Establishment Checkout Bag Requirements,” <https://www.cityofpaloalto.org/civicax/filebank/documents/63550>.

San Francisco has similar provisions.<sup>16</sup> It decided in July 2019<sup>17</sup> to both increase the amount of money charged for checkout bags from \$0.10 to \$0.25 and ban what it calls “pre-checkout bags”—defined as a “bag provided to a customer before the customer reaches the point of sale,” nearly identical in definition to Palo Alto’s produce bag language. San Francisco drew inspiration from Monterey, Pacifica, Santa Cruz and Los Altos, all of which charge more than SB270 requires for plastic bags.<sup>18</sup> The ordinance also specifically referenced an Irish law, which increased the price of plastic checkout bags from 15 cents to 22 cents, reducing plastic checkout usage by more than 95 percent, as precedent.<sup>19</sup>

Yet there are some cities that have gone even farther in their restriction of single-use plastics. Although Capitola does not ban produce/pre-checkout bags, it notably redefined the thickness of a reusable bag as equal or exceeding 4 mils, instead of 2.25 mils.<sup>20</sup> This means that any carryout bag provided by a retailer in the city is more durable than those considered multi-use by the state of California.

New York State recently introduced a plastic bag reduction ordinance that provides a number of precedents for a potential Berkeley ordinance. It bans “the provision of plastic carryout bags at any point of sale.”<sup>21</sup> It exempts compostable bag and *non*-film plastic bags and does away with any distinction between reusable and non-reusable film bags based on their thickness. Where the New York ban falls short is in its regulation of non-checkout bags: bags for produce, meat, newspapers, take-out food and garments remain legal.

Given the progress many cities and states have made in regulating plastic bags, Berkeley has many examples to emulate.

### Past Efforts in Berkeley

<sup>16</sup> San Francisco Municipal Code Chapter 17: Plastic Bag Reduction Ordinance, [http://library.amlegal.com/nxt/gateway.dll/California/environment/chapter17plasticbagreductionordinance?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:sanfrancisco\\_ca](http://library.amlegal.com/nxt/gateway.dll/California/environment/chapter17plasticbagreductionordinance?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca).

<sup>17</sup> San Francisco Municipal Code, “Ordinance amending the Environment Code,” <https://sfbos.org/sites/default/files/o0172-19.pdf>.

<sup>18</sup> Isabela Agnus, “San Francisco bumps bag fee up to 25 cents,” <https://www.sfgate.com/news/article/SF-bumps-bag-fee-25-cents-plastic-produce-ban-14102908.php>.

<sup>19</sup> Republic of Ireland Department of Communications, Climate Action & Environment, “Plastic Bags,” <https://www.dccae.gov.ie/en-ie/environment/topics/waste/litter/plastic-bags/Pages/default.aspx>.

<sup>20</sup> Capitola Municipal Code Chapter 8.07: Single-use Plastic and Paper Carryout Bag Reduction, <https://www.codepublishing.com/CA/Capitola/#!/Capitola08/Capitola0807.html#8.07>.

<sup>21</sup> New York State Governor’s Office, “An act to amend the environmental conservation law, in relation to prohibiting plastic carryout bags,” <https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/PlasticBagBan.pdf>.



Berkeley attempted to pass its own plastic bag ban in 2010.<sup>22</sup> In the years following councilmembers have pushed for reform, calling for an ordinance to improve upon county and state legislation.<sup>23</sup> Yet the threat of lawsuits<sup>24</sup> and movement on the state and county level appear to have delayed local reform.

### The Proposed Ordinance

This proposed ordinance picks up where prior attempts failed, bringing Berkeley on par with many of its neighbors in tightening restrictions on plastic bag sales. On some points, this ordinance ensures that the City again becomes a leader in environmental regulation. The following details the key changes that close loopholes in state and local law:

- Plastic bag regulations would now apply to a number of retail service establishments previously omitted from the state ban. Restaurants and food vendors would no longer be able to distribute single-use plastic carryout bags. Grocery stores and other retailers selling prepared food would be required to move away from single-use plastic produce bags.
- Retail service establishments of all sizes would be included, closing exemptions for smaller stores.
- Reusable plastic bags would be redefined as non-film plastic bags, adjusting the criteria to more accurately reflect common perceptions of reusability and the tendency for consumers treat all film bags as disposable, regardless of thickness.
- The price per non-plastic bag increases from \$0.10 to \$.25, to avoid a substitution effect.

The most common concern in reducing plastic bag waste is that the alternatives are even less sustainable. Substituting paper bags for plastic could be equally, if not more, hazardous for the environment because of the energy, transport and disposal processes required.<sup>25</sup> Cloth bags are also imperfect options, because of the large amount of energy and water necessary to produce them.<sup>26</sup> The California ban on bags thinner than 2.25

<sup>22</sup> Berkeley City Council, "Berkeley Bag Reduction Ordinance," [https://www.cityofberkeley.info/uploadedFiles/Public\\_Works/Level\\_3\\_-\\_Solid\\_Waste/BagReductionDraftOrdinance.100316.pdf](https://www.cityofberkeley.info/uploadedFiles/Public_Works/Level_3_-_Solid_Waste/BagReductionDraftOrdinance.100316.pdf).

<sup>23</sup> Kriss Worthington, "Adopt Expanded Single Use Plastic Bag Ban/Paper Bag Fee Ordinance," [https://www.cityofberkeley.info/uploadedFiles/Clerk/Level\\_3\\_-\\_City\\_Council/2012/01Jan/2012-01-31\\_Item\\_25\\_Adopt\\_Expanded\\_Single\\_Use\\_Plastic\\_Bag.pdf](https://www.cityofberkeley.info/uploadedFiles/Clerk/Level_3_-_City_Council/2012/01Jan/2012-01-31_Item_25_Adopt_Expanded_Single_Use_Plastic_Bag.pdf).

<sup>24</sup> Doug Oakley, "Berkeley's plan for plastic bag ban part of larger movement," <https://www.mercurynews.com/2009/12/23/berkeley-s-plan-for-plastic-bag-ban-part-of-larger-movement/>.

<sup>25</sup> The Environmental Literacy Council, "Paper or Plastic?" <https://enviroliteracy.org/environment-society/life-cycle-analysis/paper-or-plastic/>.

<sup>26</sup> Patrick Barkham, "Paper bags or plastic bags: which are best?" <https://www.theguardian.com/environment/shortcuts/2011/dec/20/paper-plastic-bags-which-best>.

mils may also have resulted in a substitution toward thicker and less sustainable film bags.<sup>27</sup> Moreover, international studies confirm that even single-use bags are reused to a limited degree for other household functions, such as garbage disposal or to pick up dog feces.<sup>28</sup> A University of Sydney economist found that garbage bag consumption increased when California placed restrictions on single-use plastic bags, likely because consumers no longer had as many free single-use film bags at hand in which to dispose their waste. Yet that same study also concluded that the benefits of the ban were still significant: Californians consumed 28 million pounds fewer plastic than they did before.<sup>29</sup>

Still, eliminating plastic bags cannot be the only approach to combat the cycle of consumer waste. It must come, as this ordinance would ensure, in combination with higher prices and greater requirements for the percentage of recycled content in paper bags. Any paper bags sold in Berkeley must per this resolution contain no old growth fiber, be 100% recyclable overall and contain a minimum of 40% post-consumer recycled content.

Data from Alameda County as a whole seems to indicate that when the cost of single-use paper bags was set at \$0.10, consumption *decreased* by approximately 40% within three years.<sup>30</sup> The same report revealed that “plastic bags found in storm drains decreased by 44 percent, indicating that the ordinance has been successful in reducing single use plastic bag litter.” Further price increases have been shown to realize even larger benefits.

### FISCAL IMPLICATIONS

Staff or contractor costs for the launch, for outreach and education, enforcement, administration and analysis.

### ENVIRONMENTAL SUSTAINABILITY

Reducing the amount of discarded plastic bags—previously classified as multi-use—in the city of Berkeley will result in less over all waste and fewer plastic that makes it into local and regional waterways.

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<sup>27</sup> Christian Britschgi, “California Plastic Bag Bans Spur 120 Percent Increase in Sales of Thicker Plastic Garbage Bags,” <https://reason.com/2019/04/11/california-plastic-bag-bans-spur-120-per/>.

<sup>28</sup> NPR Planet Money, “Are Plastic Bag Bans Garbage?” <https://www.npr.org/sections/money/2019/04/09/711181385/are-plastic-bag-bans-garbage>.

<sup>29</sup> Rebecca L.C. Taylor, “Bag leakage: The effect of disposable carryout bag regulations on unregulated bags,” <https://www.sciencedirect.com/science/article/pii/S0095069618305291>.

<sup>30</sup> Alameda County Waste Management Authority, “Addendum to the Final Environmental Impact Report Mandatory Recycling and Single Use Bag Reduction Ordinances,” <http://reusablebagsac.org/resources/addendum-final-environmental-impact-report-2016>.

Furthermore, a switch toward bags made from polyester or plastics like polypropylene, which are more sustainable than film bags and sold at many grocery stores will lead to greater environmental sustainability.<sup>31</sup>

CONTACT PERSON

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<sup>31</sup> Claire Thompson, "Paper, Plastic or Reusable?" [https://stanfordmag.org/contents/paper-plastic-or-reusable?utm\\_source=npr\\_newsletter&utm\\_medium=email&utm\\_content=20190408&utm\\_campaign=money&utm\\_term=nprnews](https://stanfordmag.org/contents/paper-plastic-or-reusable?utm_source=npr_newsletter&utm_medium=email&utm_content=20190408&utm_campaign=money&utm_term=nprnews).

ORDINANCE NO. –N.S.

ADDING CHAPTER 11.62 TO THE BERKELEY MUNICIPAL CODE TO REGULATE PLASTIC BAGS AT RETAIL AND FOOD SERVICE ESTABLISHMENTS

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

Section 1. That Chapter 11.62 of the Berkeley Municipal Code is added to read as follows:

**Chapter 11.62**

**PLASTIC BAGS**

**Sections:**

**11.62.010 Findings and Purpose.**

**11.62.020 Definitions.**

**11.62.030 Types of Checkout Bags permitted at Retail Service and Food Service Establishments.**

**11.62.040 Checkout Bag charge for paper or Reusable Checkout Bags at Retail Service establishments.**

**11.62.050 Use of Compostable Produce Bags at Retail Service Establishments.**

**11.62.060 Hardship Exemption**

**11.62.070 Duties, responsibilities and authority of the City of Berkeley.**

**11.62.080 City of Berkeley--purchases prohibited**

**11.62.090 Liability and Enforcement.**

**11.62.100 Severability.**

**11.62.110 Construction.**

**11.62.120 Chapter supersedes existing laws and regulations.**

**11.62.130 Effective Date.**

### **11.62.010 Findings and Purpose.**

The Council of the City of Berkeley finds and declares as follows:

- A. Single-use plastic bags, plastic produce bags, and plastic product bags are a major contributor to street litter, ocean pollution, marine and other wildlife harm and greenhouse gas emissions.
- B. The production, consumption and disposal of plastic based bags contribute significantly to the depletion of natural resources. Plastics in waterways and oceans break down into smaller pieces that are not biodegradable, and present a great harm to global environment.
- C. Among other hazards, plastic debris attracts and concentrates ambient pollutants in seawater and freshwater, which can transfer to fish, other seafood and salt that is eventually sold for human consumption. Certain plastic bags can also contain microplastics that present a great harm to our seawater and freshwater life, which implicitly presents a threat to human life.
- D. It is in the interest of the health, safety and welfare of all who live, work and do business in the City that the amount of litter on public streets, parks and in other public places be reduced.
- E. The City of Berkeley must eliminate solid waste at its source and maximize recycling and composting in accordance with its Zero Waste Goals. Reduction of plastic bag waste furthers this goal.
- F. The State of California regulates single-use carryout bags as directed under Senate Bill 270, but numerous local governments, including San Francisco and Palo Alto, have imposed more stringent regulations to reduce the toll plastic bags inflict upon the environment.
- G. Stores often provide customers with plastic pre-checkout bags to package fruits, vegetables, and other loose or bulky items while shopping, before reaching the checkout area. They share many of the same physical qualities as single-use plastic carryout bags no longer permitted in California, and are difficult to recycle or reuse.
- H. SB 270 permits local governments to increase the price of bags provided at the point of sale and leaves open any regulation on pre-checkout bags, such as at meat or vegetable stands within grocery stores.
- I. The City of Berkeley regulates a number of disposable plastic items through the Single-Use Foodware and Litter Reduction Ordinance (Ord. 7639-NS § 1 (part), 2019), but does not impose regulations on bags.
- J. This Chapter is consistent with the City of Berkeley's 2009 Climate Action Plan, the County of Alameda Integrated Waste Management Plan, as amended, and the CalRecycle recycling and waste disposal regulations contained in Titles 14 and 27 of the California Code of Regulations.

### **11.62.20 Definitions.**

"Checkout Bag" means a bag provided by a Retail Service Establishment at the checkstand, cash register, point of sale or other point of departure for the purpose of transporting food or merchandise out of the establishment. Checkout Bags do not include Produce Bags or Product Bags.

"Recyclable Paper Checkout Bag" means a paper bag that meets the following criteria:

- 1. Contains no old growth fiber;
- 2. Is 100% recyclable overall and contains a minimum of 40% post-consumer recycled content;
- 3. Displays the word "Recyclable" on the outside of the bag along with the manufacturer, the location (country) where manufactured and the percentage of post-consumer recycled content in an easy-to-read size font;

4. Or is made from alternative material or meets alternative standards approved by the City Manager or their designee.

"Reusable Checkout Bag" means all Checkout Bags defined as reusable under Cal. PRC §42280-42288, such as cloth or other washable woven bags, but do not include film bags considered reusable under Cal. PRC §42280-42288.

"Produce Bag" means a bag provided to a customer to carry produce, meats, bulk food, or other food items to the point of sale inside a store and protects food or merchandise from being damaged or contaminated by other food or merchandise when items are placed together in a Reusable Checkout Bag or Recyclable Paper Checkout Bag.

"Compostable Produce Bags" means paper bags and bags made of plastic-like material if the material meets the ASTM Standard Specifications for compostability D6400 or D6868, or the product is Biodegradable Products Institute (BPI) certified, or is considered acceptable within the City's compost collection program.

"Product Bag" means a bag provided to a customer to protect merchandise from being damaged or contaminated by other merchandise when items are placed together in a Reusable Checkout Bag or Recyclable Paper Checkout Bag; a bag to hold prescription medication dispensed from a pharmacy; or a bag without handles that is designed to be placed over articles of clothing on a hanger.

"Retail Food Establishment" means any establishment, located or providing food within the City, which provides prepared and ready-to-consume food or beverages, for public consumption including but not limited to any Retail Service Establishment, eating and drinking service, takeout service, supermarket, delicatessen, restaurant, food vendor, sales outlet, shop, cafeteria, catering truck or vehicle, cart or other sidewalk or outdoor vendor or caterer which provides prepared and ready-to-consume food or beverages, for public consumption, whether open to the general public or limited to certain members of the public (e.g., company cafeteria for employees).

"Retail Service Establishment" means a for-profit or not-for-profit business that where goods, wares or merchandise or services are sold for any purpose other than resale in the regular course of business (BMC Chapter 9.04.135).

#### **11.62.030 Types of Checkout Bags permitted at Retail Service and Food Service Establishments.**

- A. Retail Service Establishments and Food Service Establishments shall provide or make available to a customer only Reusable Checkout Bags, Compostable Produce Bags, or Recyclable Paper Checkout Bags for the purpose of carrying away goods or other materials from the point of sale, subject to the terms of this Chapter.
  1. Exception: Single-use plastic bags exempt from the Chapter include those integral to the packaging of the product, Product Bags, or bags sold in packages containing multiple bags intended for use as garbage, pet waste or yard waste bags.
- B. Effective [ ], 2020, farmers markets shall only provide Compostable Produce Bags to hold produce, meats, bulk food or other food items. Single-use Plastic Checkout Bags, Produce Bags or Product Bags shall not be provided by farmers markets for produce or meat.

- C. Nothing in this Chapter prohibits customers from using bags of any type that they bring to the establishment themselves or from carrying away goods that are not placed in a bag at point of sale, in lieu of using bags provided by the establishment.

**11.62.040 Checkout Bag charge for paper or Reusable Checkout Bags at Retail Service Establishments.**

2. Situations where compliance with the requirements of this Chapter would deprive a person of a legally protected right.
- B. Retail Service Establishments shall not enforce the ten cent (\$0.25) store charge for customers participating in the California Special Supplemental Food Program for Women, Infants, and Children, or in CalFresh, or in the Supplemental Nutrition Assistance Program (SNAP).

**11.62.070 Duties, responsibilities and authority of the City of Berkeley.**

The City Manager or their designee shall prescribe, adopt, and enforce rules and regulations relating to the administration and enforcement of this Chapter and is hereby authorized to take any and all actions reasonable and necessary to enforce this Chapter including, but not limited to, inspecting any Retail Service Establishment's premises to verify compliance.

**11.62.080 City of Berkeley—purchases prohibited.**

The City of Berkeley shall not purchase any Foodware or Bag that is not Compostable, Recyclable or Reusable under Disposable Foodware and Bag Standards in Section 11.64.080, nor shall any City-sponsored event utilize non-compliant Disposable Foodware and Bag.

**11.62.090 Liability and Enforcement.**

- A. Anyone violating or failing to comply with any requirement of this Chapter may be subject to an Administrative Citation pursuant to Chapter 1.28 or charged with an infraction as set forth in Chapter 1.20 of the Berkeley Municipal Code; however, no administrative citation may be issued or infraction charged for violation of a requirement of this Chapter until one year after the effective date of such requirement.
- B. Enforcement shall include written notice of noncompliance and a reasonable opportunity to correct or to demonstrate initiation of a request for a waiver or waivers pursuant to Section 11.64.090.
- C. The City Attorney may seek legal, injunctive, or other equitable relief to enforce this Chapter.
- D. The remedies and penalties provided in this section are cumulative and not exclusive.

**11.62.100 Severability.**

If any word, phrase, sentence, part, section, subsection, or other portion of this Chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the prescribed application thereof, shall be severable, and the remaining provisions of this Chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The City Council hereby declares that it would have passed this title, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases had been declared invalid or unconstitutional.

**11.62.110 Construction.**

This Chapter is intended to be a proper exercise of the City's police power, to operate only upon its own officers, agents, employees and facilities and other persons acting within its boundaries, and not to regulate inter-city or interstate commerce. It shall be construed in accordance with that intent.

**11.62.120 Chapter supersedes existing laws and regulations.**

The provisions of this Chapter shall supersede any conflicting law or regulations.



**11.62.130 Effective Date.**

The provisions in this ordinance are effective [ ], 2020.

Section 2. 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.



## Draft outcome objectives for the Planning of long-term improvements to Berkeley's streets

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**Outcome one:** Berkeley's overall street condition shall be at a level that supports safe and efficient use by all users.

- Multi-modal transportation
- Bike routes
- Pedestrians
- Vision zero
- Implement Complete Streets

**Outcome two:** Our streets shall be climate smart and contribute to multiple benefits.

- Contribute to meeting our climate action goals. Move away from fossil fuel based paving material when doing full street reconstruction.
- Provide multiple benefits
- Go beyond Green Infrastructure with **blue-green infrastructure** providing the "ingredients" for solving urban and climatic challenges by building with nature.

**Outcome three:** Our streets shall be durable and incorporate sustainable advanced technologies.

- Incorporate long lasting materials, such as permeable pavers, concrete and other technologies
- Use life cycle cost analysis that matches the funding time horizon

**Outcome four:** Planning for our street improvements shall be integrated with other needs in the public right of way.

- Coordinate with utility undergrounding, water lines, sewer lines, gas lines, etc.
- Plan for long-term maintenance using an asset management system
- Build flexible infrastructure that can adapt to climate, demographic and technical change

RECEIVED AT  
COUNCIL MEETING OF:

FEB 18 2019

OFFICE OF THE CITY CLERK  
CITY OF BERKELEY

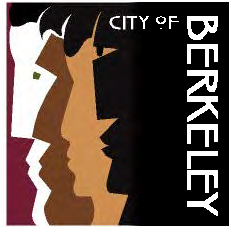
**Annual Allocation of Vehicle Registration, State Transportation Tax and SB1  
Revenues to Streets**

<b>Auto In-lieu (Measure F Vehicle Registration)</b>		<b>State Transportation Tax</b>		<b>SB1</b>	
<b>Total</b>	<b>Average Annual Funding Allocated to Streets (FY 20-24)</b>	<b>Total</b>	<b>Average Annual Funding Allocated to Streets (FY 20-24)</b>	<b>Total</b>	<b>Average Annual Funding Allocated to Streets (FY 20-24)</b>
\$12.5 million (FY 2019 actual)	\$155,000	\$12.9 million (FY 2020 adopted revenue)	\$495,303	Included under state transportation tax	\$1,780,000

**RECEIVED AT  
COUNCIL MEETING OF:**

**FEB 18 2019**

**OFFICE OF THE CITY CLERK  
CITY OF BERKELEY**



Kate Harrison  
Councilmember District 4

## **REVISED AGENDA MATERIAL for Supplemental Packet 2**

**Meeting Date:** January 21, 2020

**Item Number:** 43b

**Item Description:** Companion Report: Public Works Commission  
Recommendation for the Five-Year Street Rehabilitation Plan

**Submitted by:** Councilmember Harrison

**Recommendation:**

1. In order to improve bicyclist and mobility safety and to reduce greenhouse gas emissions, modify the five-year paving plan to utilize a portion of the \$1,046,295 in FY 2021 discretionary funds to complete the Channing Way Shattuck to MLK (currently scheduled for 2024) segment in FY 2021:
  - a. Channing Way Milvia St. to Shattuck Ave. – cost: \$267,640 (PCI of 34)
  - b. Channing Way MLK to Milvia St. – cost: \$462,920 (PCI of 15)

In addition, delay the Roosevelt Ave. segment (PCI of 52) 2024, freeing up \$172,480 in FY 2021.

The proposed modification of the five-year plan would utilize **\$558,080** (53%) of FY 2021 discretionary funds to complete the Channing segment project in 2021.

2. Refer to the Facilities, Infrastructure, Transportation, Environment, & Sustainability Committee to work with the Public Works Department and

the Commission to explore potential bonding and funding opportunities for improving the PCI of residential streets.

## **Rationale**

### **1. Channing Way**

- The Council recently passed Councilmember Robinson’s referral prioritizing paving streets with bicycle routes.
- Prioritizing bicycle and mobility infrastructure is in line with the City’s Vision Zero and Climate Action Plan goals.
- This route has been identified by bicyclists as a key bicycle boulevard connecting West Berkeley to the Downtown and the Southside. This route also intersects with the key crosstown Milvia bikeway project and provides citywide benefits.
- Transportation remains the largest sector of GHG emissions and we should be doing everything possible to facilitate people using low-carbon methods of transportation.
- This route intersects Berkeley High School and leads to the UC Campus and therefore would be utilized by students, who are less likely to drive.

### **2. Expanding Funding Sources to Improve Residential PCI**

- A recent MTC report warns that Berkeley’s overall paving condition is “At Risk,” meaning on the cusp of falling into “Failing” category.
- The five-year paving plan is the result of historic deferred maintenance and an underfunded, imperfect and complex balance between arterial, collector and residential streets distributed across Council districts.
- Residential streets across the entire city are largely categorized as failing.
- Even though Public Works has agreed to increase the emphasis on residential streets in the latest plan, there is currently not enough funding available to rehabilitate all of our residential streets.
- Council should consider investing in paving beyond what is already allocated in the 5-year plan.
- Other neighboring cities in the Bay Area, such as Richmond, El Cerrito, San Francisco et al. have “Excellent/Very Good” to “Fair/Good.”
- Council should consider the recommendation of the Mayor’s Vision 2050 report that we explore additional funding opportunities by leveraging our

good credit rating and low interest rates to raise new funding for streets.

- For example, we can bond against various revenue sources to issue new bonds (e.g. Parking Meter revenue and other City Enterprise Funds). The Vision 2050 report estimated the city could carry ~\$350 million in revenue bond debt from its funds. The report states that the City currently carries approximately \$60 million.







Community Environmental  
Advisory Commission

**08**

ACTION CALENDAR  
April 14, 2020

To: Honorable Mayor and Members of the City Council  
 From: Community Environmental Advisory Commission  
 Submitted by: Ben Gould, Chairperson, Community Environmental Advisory Commission  
 Subject: Prohibition on the Resale of Used Combustion Vehicles in 2040

RECOMMENDATION

Review and refer to the City Attorney for finalization the attached ordinance prohibiting the resale of used, existing combustion-powered vehicles beginning in 2040.

SUMMARY

Prohibiting the resale of used combustion vehicles is likely to increase the availability of non-combustion alternatives. This policy is important to help address environmental inequities, reduce greenhouse gas emissions, and improve public health; however, it may also raise the price of used vehicles and programs will be required to ensure that low-income and disadvantaged communities are able to benefit. This is an application of local police power which is not preempted by state or federal law.

FISCAL IMPACTS OF RECOMMENDATION

Some staff time for review and finalization of the ordinance. Adoption of the ordinance itself may expose the City to potential fiscal impacts, including risk of a lawsuit and, if ultimately enforced, additional fiscal impacts from impacts to sales, property, and other tax or fee revenues.

CURRENT SITUATION AND ITS EFFECTS

On June 12, 2018, Berkeley City Council unanimously declared a Climate Emergency, which called for “a just citywide emergency mobilization effort to end citywide greenhouse gas emissions as quickly as possible.” Berkeley also set a goal of being a Fossil Fuel Free city and becoming a net carbon sink, as well as becoming carbon neutral by 2045.

Berkeley’s Climate Action Plan also sets the goal of an 80% reduction in greenhouse gas emissions by 2050, and Berkeley’s Strategic Plan sets the goal of being a global leader in addressing climate change, advancing environmental justice, and protecting the environment.

Citywide, transportation powered by internal combustion engines makes up 60% of the city's greenhouse gas emissions. Unfortunately, this share – and total level of emissions – is only expected to grow. In order to achieve its emission reduction goals, Berkeley needs a strategy that will phase out the use of combustion vehicles, including ensuring a wide availability of used non-combustion vehicles for the broader market which cannot afford new vehicles, while ensuring compliance with all applicable state and federal laws.

At a regular meeting on Thursday, November 14, 2019, the Community Environmental Advisory Commission approved a motion to send the *Prohibition of resale of Used Combustion Vehicles on city streets by 2040* recommendation to City Council. (M/S/C) Gould, Hetzel. Ayes: Simmons, Varnhagen, Hetzel, Goldhaber, Gould. Abstained: De Leon. Absent: Ticconi.

### BACKGROUND

Berkeley is home to, and a route for, tens of thousands of combustion-powered automobiles, trucks, and other vehicles which annually emit roughly 360,000 metric tons of greenhouse gases (GHGs). There are an estimated 46,000 vehicles registered within the City of Berkeley, of which only about 1,400 (3%) are electric or plug-in hybrid vehicles.

Berkeley has declared a Climate Emergency, set the goal of becoming a fossil-fuel free city, and aims to achieve carbon neutrality by 2045. City staff are working aggressively to develop a comprehensive action-based Electric Vehicle (EV) roadmap to find opportunities to increase equitable access to EV's within Berkeley's diverse community.

Most local, regional, and state efforts around expanding EV uptake is focused on increasing and enabling purchases of new EVs, whether through incentives and support for consumers (such as tax deductions or public chargers) or state- and federal-level mandates for manufacturers to sell clean vehicles.

Since most vehicles eventually break down and reach a point where it is not economic to continue maintaining them, targeting new vehicles can be expected to ultimately drive an eventual transition to non-combustion vehicles. However, even if no new combustion vehicles were sold in California, it would take roughly 15 years<sup>1</sup> to transition all remaining, existing vehicles to non-combustion alternatives – likely longer.

Regulations on new vehicle emission and fuel economy standards are set by the federal (and state) government under existing federal law, such as the Clean Air Act (CAA) and the Energy Policy Conservation Act (EPCA). The CAA and EPCA expressly preempt

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<sup>1</sup> Based upon DMV data on roughly 30 million registered automobiles and light trucks (<https://www.dmv.ca.gov/portal/wcm/connect/5aa16cd3-39a5-402f-9453-0d353706cc9a/official.pdf?MOD=AJPERES>), and CNCDA data on roughly 2 million new vehicle sales annually (above), the time to replace every vehicle in California is roughly 15 years.

local authorities from enacting regulations on new vehicles. However, they deliberately omit any imposition of regulations on existing vehicles, thereby leaving that application of police power to the states and local jurisdictions.

In California, roughly two-thirds of all vehicle sales are used, existing vehicles<sup>2</sup>. The state has not extensively regulated in this market – used vehicles, as all vehicles, are required to meet smog checks certifying the vehicle meets the emission standards it was manufactured to, but no more. As the Legislature appears to have no intent or interest in further regulating used vehicles, it falls to local governments to address used combustion vehicle sales.

In the face of federal inaction on zero-emission mandates, local jurisdictions can and should act to incentivize a timely, equitable, and just transition to zero-emission transportation. This is a matter of municipal concern, because the continued availability of used combustion vehicles adversely effects city's ability to achieve carbon neutrality and meet its greenhouse gas reduction goals.

Prohibiting the resale of used combustion vehicles creates two incentives that support non-combustion alternatives. Firstly, by making it more difficult for consumers to get rid of an unwanted, used combustion vehicle, individuals will be encouraged to choose non-combustion vehicles when purchasing new vehicles. Consumers often plan to keep vehicles for 5, 10, or even 15 years or longer, enacting this policy as soon as possible will ensure it has the greatest possible impact. Because this acts as an indirect incentive on the purchase of new vehicles, and not as any standard or mandate (consumers can still purchase and use combustion vehicles, sell them before January 1<sup>st</sup>, 2040, resell them outside of Berkeley after January 1<sup>st</sup>, 2040, or scrap them), it complies with the Clean Air Act.

Secondly, removing combustion vehicles from the resale market effectively constrains the supply of used vehicles, and can be expected to drive up the price of the remaining used vehicles – all non-combustion. This would therefore incentivize existing non-combustion vehicle owners to sell their vehicles, expanding the supply of available used non-combustion vehicles.

Unfortunately, this latter incentive acts as a double-edged sword from an equity perspective. While expanding the availability of non-combustion vehicles helps ensure low-income and disadvantaged consumers find alternatives to purchase, which may be particularly necessary if other policies (such as a combustion vehicle operation ban) are enacted, raising the price simultaneously makes it more difficult for these consumers to afford the vehicles they need. In addition, low-income and disadvantaged consumers are most likely to still own or be using combustion vehicles by the time any ban or

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<sup>2</sup> *California Auto Outlook Covering Second Quarter 2019*, California New Car Dealers Association <https://www.cncda.org/wp-content/uploads/Cal-Covering-2Q-19.pdf>. Accessed September 2019.

restrictions would take effect, and would therefore be faced with the greatest burden in getting rid of any such vehicle when they chose to do so.

Local, regional, and state governments will likely need to address this equity issue through non-combustion vehicle purchase incentives and subsidies, and potentially combustion vehicle buyback programs, targeted for low-income households. These programs are already beginning to be enacted for low-income individuals to purchase new EVs, and so it is likely they will continue to be further developed and in place in the time frame proposed in this policy.

While these financial inequities are important and must be planned for and addressed, the proposed policy still addresses several other equity issues which cannot be addressed through any means but with technological change. For decades, our low-income communities have disproportionately borne the brunt of air pollution and noise from the operation of combustion vehicles; the fact that these communities have simultaneously relied upon the oldest, cheapest, and therefore dirtiest vehicles only compounds the issue. In the long run, these communities are also the communities most vulnerable to, and threatened by, climate change. Driving an aggressive transition to non-combustion vehicles may create some short-term economic issues that can and must be planned for and addressed. These issues should not obstruct resolving the greater injustice of air pollution and climate change.

#### ENVIRONMENTAL SUSTAINABILITY

Banning the resale of used combustion vehicles will ensure they are phased out and will incentivize businesses to further promote the sale of electric vehicles.

#### CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The proposed policy is categorically exempt from CEQA under CEQA Guidelines Sections 15307 and 15308.

#### RATIONALE FOR RECOMMENDATION

Berkeley is extremely unlikely to meet its carbon reduction and fossil-free goals without aggressive action on transportation decarbonization. While working to drive EV uptake helps, CEAC believes that setting dates beyond which combustion vehicles will not be supported under City policy will help further.

Prohibiting the resale of used combustion vehicles will doubly incentivize consumers to choose non-combustion alternatives – for those looking to purchase new vehicles, knowing they must go outside of city limits to resell their vehicle adds an additional barrier and is an incentive to choose a non-combustion alternative. For those purchasing used vehicles, removing combustion vehicles from the used market ensures greater availability and choice of non-combustion alternatives. This may, however, drive up prices for used vehicles, and this must be addressed through additional programs as the policy comes into force.

The federal government currently lacks the jurisdiction to prohibit the resale of used combustion vehicles, and there is no evidence the state government will choose to do so. As a result, if the sale of used combustion vehicles is to be restricted, Berkeley must take action.

Setting 2040 as a phase-out date for the sale of used combustion vehicles will help ensure vehicle owners in Berkeley can more readily transition to non-combustion alternatives by 2045, when Berkeley aims to be carbon-neutral.

#### ALTERNATIVE ACTIONS CONSIDERED

CEAC considered taking no action, but determined that was not an effective approach to addressing Berkeley's declared Climate Emergency, becoming a fossil fuel free city, or achieving carbon neutrality.

CEAC considered an earlier phase-out date, such as 2030 or 2035, but determined it was unclear that there would be adequate availability of used vehicles by that time. While there may still not be enough in 2040, CEAC determined that there needed to be some transition time to support any 2045 phase-out policies in place.

CEAC considered providing an expanded exemption to allow vehicles which are newer than a certain number of years to be resold. CEAC decided there did not appear to be any compelling reason to do so, and that any potential benefits were likely not to accrue to disadvantaged communities.

#### CITY MANAGER

The City Manager takes no position on the content and recommendations of the Commission's Report.

#### CONTACT PERSON

Ben Gould, Chair, Community Environmental Advisory Commission, 510-725-9176

#### Attachments:

1: Ordinance

ORDINANCE NO. -N.S.

AMENDING BERKELEY MUNICIPAL CODE TITLE 9 TO PROHIBIT THE SALE OF COMBUSTION VEHICLES.

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

Section 1. That the Berkeley Municipal Code Chapter 9.97 is added to read as follows:

**Chapter 9.97  
RESALE OF USED COMBUSTION VEHICLES**

**Sections:**

9.97.010 Findings  
9.97.020 Purpose  
9.97.030 Definitions  
9.97.040 Prohibition  
9.97.050 Exemptions

9.97.010 Findings

A. Berkeley aims to become carbon neutral by 2045, reduce greenhouse gas emissions by 80%, and become a fossil fuel free city.

B. Over 60% of greenhouse gas emissions in Berkeley result from transportation.

C. Transitioning 100% of new vehicle sales to non-combustion vehicles by 2030 would dramatically improve Berkeley's ability to achieve carbon neutrality by 2045.

D. The Clean Air Act and the Energy Policy Conservation Act prohibit states and cities from setting emission or fuel economy standards for new vehicles, without restricting their authority to set regulations for used vehicles.

E. Roughly two-thirds of all vehicle sales in California are in the used car market.

F. Disadvantaged and low-income communities disproportionately rely upon the used car market and are disproportionately impacted by air pollution and climate change driven by used combustion vehicles.

G. Berkeley can support availability of used non-combustion vehicles and nourish a used car market for non-combustion vehicles through restricting the resale of used combustion vehicles and developing programs to support low-income residents in transitioning to non-combustion alternatives.

#### 9.97.020 Purpose

The purpose of this chapter is to promote the health and safety of Berkeley residents and visitors, to address environmental impacts, and to address environmental justice.

#### 9.97.030 Definitions

For the purposes of this chapter, the following words and phrases shall have the meaning respectively ascribed to them by this section:

A. "Combustion vehicle" shall mean any on-road land motor vehicle which uses the combustion or oxidation of any carbon-based fuel to provide power or propulsion.

B. "New motor vehicle" shall have the same definition as set forth under the Clean Air Act, 42 US Code § 7550(3).

#### 9.97.040 Prohibition

Beginning January 1<sup>st</sup>, 2040, it shall be unlawful to sell, resell, trade, or distribute any combustion vehicle with a model year of more than three (3) years old by any means anywhere within the City of Berkeley.

#### 9.97.050 Exemption

This prohibition shall not apply to the sale of new motor vehicles which are subject to regulation under the Clean Air Act.







Community Environmental  
Advisory Commission

**09**

ACTION CALENDAR

April 14, 2020

To: Honorable Mayor and Members of the City Council  
 From: Community Environmental Advisory Commission  
 Submitted by: Ben Gould, Chairperson, Community Environmental Advisory Commission  
 Subject: Prohibition on the Use of City Streets for Operating, Parking, or Idling  
 Combustion Vehicles by 2045

RECOMMENDATION

Review and refer to the City Attorney for finalization the attached ordinance prohibiting the use of City-owned streets for the operation, parking, or idling of combustion vehicles beginning in 2045, and establishing an offset-driven fee-based enforcement mechanism.

SUMMARY

Achieving carbon neutrality by 2045 and an 80% reduction in greenhouse gas emissions by 2050 will require aggressive policies to phase out the use of fossil fuels for transportation. This proposed ordinance would prohibit vehicles which rely on burning fossil fuels (or other carbon-based fuels) from operating, parking, or idling on local City-owned streets. Enforcement is proposed to be through a fee structure similar to a congestion pricing zone, with pricing set to cover the cost of enforcement and of purchasing carbon offsets in order to achieve carbon neutrality.

FISCAL IMPACTS OF RECOMMENDATION

Some staff time for review. Additional staff time may be required leading up to 2045 to develop and establish a carbon offset program for combustion vehicles, though any such program would also be required for offsetting any residual emissions present in the city at such time. No ongoing net fiscal impacts, as any fiscal impacts associated with enforcement or program management are to be offset by levied fees.

Adoption of the ordinance may expose the City to other potential direct or indirect fiscal impacts, including a potential lawsuit, or impacts to sales, property, and other tax or fee revenues resulting from public behavior changes.

## CURRENT SITUATION AND ITS EFFECTS

Citywide, transportation is the single largest source of greenhouse gas (GHG) emissions, contributing 60% of the city's total emissions. The City of Berkeley has adopted goals of being a Fossil Fuel Free city and becoming a net carbon sink by 2030, achieving carbon neutrality by 2045, achieving an 80% reduction in GHG emissions by 2050, and has declared a Climate Emergency, calling for "a just citywide emergency mobilization effort to end citywide greenhouse gas emissions as quickly as possible." However, greenhouse gas emissions from transportation are currently expected to grow.

Berkeley's Strategic Plan sets the goal of being a global leader in addressing climate change, advancing environmental justice, and protecting the environment. In line with this, City staff are working aggressively to develop a comprehensive action-based Electric Vehicle (EV) roadmap to find opportunities to increase equitable access to EV's within Berkeley's diverse community. This roadmap – currently in draft form – identifies the key barriers to electric mobility adoption, analyzes equity challenges and opportunities, and provides a comprehensive set of strategies to expand access to electric mobility choices throughout the city, including approaches which specifically tackle equity concerns in electric mobility, work towards net zero carbon, expand alternatives to driving, and call for city leadership.

In preparing this roadmap, staff has found that in order to reach the goal of carbon neutrality by 2045, given current vehicle turnover rates, the rate of EV uptake would need to accelerate dramatically, reaching 100% of new vehicle registrations by 2030 in order to achieve roughly 100% electrification by 2045. To achieve the City's voter-ratified goal of an 80% reduction in greenhouse gas emissions by 2050, roughly 100% of new vehicle registrations would have to be EVs by 2035.

Berkeley's current rate of EV uptake is not high enough to achieve this without significant policy changes. In 2017, only 16% of new personal vehicle registrations in Berkeley were EVs. This is a significantly higher adoption rate than much of the rest of California, but achieving Berkeley's goals would require this to be accelerated further still. At the current rate of uptake growth, Berkeley's newly registered vehicles would be 100% EVs in 2055. Assuming an average vehicle lifespan of ~15 years<sup>1</sup>, there would still be combustion vehicles registered in Berkeley through at least 2070 – 25 years past the target date for carbon neutrality.

Expanding equitable access to electric mobility options for Berkeley residents is critical for driving uptake, including improving alternatives to driving and expanding public

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<sup>1</sup> Based upon DMV data on roughly 30 million registered automobiles and light trucks (<https://www.dmv.ca.gov/portal/wcm/connect/5aa16cd3-39a5-402f-9453-0d353706cc9a/official.pdf?MOD=AJPERES>), and California New Car Dealers Association data on roughly 2 million new vehicle sales annually (<https://www.cncda.org/wp-content/uploads/Cal-Covering-2Q-19.pdf>), the lifespan of a typical vehicle in California is roughly 15 years.

charging infrastructure. The EV roadmap currently being prepared will be effective in the 5-10 year timeline it considers, and will help to substantially move the needle on Berkeley residents' EV uptake.

While the EV roadmap's efforts are critical, they will still fall short in achieving overall carbon neutrality. Many people who work, shop, or study in Berkeley either cannot afford or choose not to live in Berkeley, and so are less likely to be directly impacted by the EV roadmap's initiatives. Most other Bay Area cities have EV uptake rates even lower than Berkeley's, and are often doing less to accelerate the transition to EVs. In addition, Berkeley is served by numerous freight and delivery trucks bringing goods to Berkeley's businesses and residents, and these trucks are unlikely to be impacted by the EV roadmap.

The limited scope of the EV roadmap means it is unable to address the entire picture of Berkeley's greenhouse gas emissions from transportation, and should not be considered as the only set of approaches Berkeley can take. Other policies which support and align with the EV roadmap can help add to its effectiveness.

Without significant action, including the proposals in the EV Roadmap and more, it is extremely unlikely that Berkeley will be able to achieve the dramatic reduction in greenhouse gas emissions called for by the voters and its carbon neutrality goal.

At a regular meeting on Thursday, November 14, 2019, the Community Environmental Advisory Commission unanimously approved a motion to send the *Prohibition on the Use of City Street for Operating, Parking, or Idling Combustion Vehicles by 2045* recommendation to City Council (M/S/C) Gould, Hetzel. Ayes: Simmons, Varnhagen, Hetzel, Goldhaber, Gould. Abstained: De Leon. Absent: Ticconi.

## BACKGROUND

In 2006, Berkeley voters overwhelmingly supported Measure G, calling to reduce greenhouse gas emissions by 80% below 1990 levels by 2050. Berkeley's original award-winning Climate Action Plan was built around this goal.

Following this, on June 12, 2018, Berkeley City Council unanimously declared a Climate Emergency, calling for "a just citywide emergency mobilization effort to end citywide greenhouse gas emissions as quickly as possible." Berkeley also set a goal of being a Fossil Fuel Free city, becoming a net carbon sink by 2030, and achieving carbon neutrality by 2045.

Citywide, transportation is the single largest source of greenhouse gas emissions, contributing 60% of the city's total emissions. Berkeley is home to, and a route for, tens of thousands of combustion-powered automobiles, trucks, and other vehicles which annually emit roughly 360,000 metric tons of carbon dioxide and other greenhouse

gases. Unfortunately, this share – and the total level of emissions – is currently expected to grow.

The generally accepted accounting methodology for greenhouse gas emissions, which was used to generate this estimate, only considers vehicle trips on public roads which either start or end within city limits as affecting the City's overall greenhouse gas emissions. In order to achieve carbon neutrality under that accounting methodology, therefore, the City must ensure that vehicle trips which start or end within city limits, traveling upon City streets, are carbon neutral by 2045.

The proposed policy would prohibit the use of City-owned streets for operating, parking, or idling combustion vehicles<sup>2</sup> beginning in 2045. Under the policy, combustion vehicles found to be operating, parked, or idle would be levied a fee to cover the cost to the City of purchasing a carbon offset to neutralize the emissions (along with an administrative fee to cover the cost of enforcement). In effect, this policy creates a zero-emission zone covering all local surface streets in Berkeley (with exceptions for state and federal highways), similar to congestion pricing zones in other cities.

This would be a novel and unprecedented policy approach which relies upon the principle of local police power over city streets to regulate the operation of certain vehicles. While this policy is novel, it effectively works as a zero-emission pricing zone – similar to a congestion zone, where vehicles are charged for their use of limited streetscape, vehicles are instead charged to offset the impact of their emissions. Vehicle operators who choose to operate a combustion vehicle do *not* face criminal penalties.

This unusual policy raises numerous questions and special considerations, which are elaborated upon in Attachments 2 and 3.

#### ENVIRONMENTAL SUSTAINABILITY

Prohibiting the use of City streets for the operation, parking, or idling of combustion vehicles within City limits will reduce fossil fuel use and prevent the release of greenhouse gases into the atmosphere. Requiring violators to cover the cost of carbon offsets would, if effective, ultimately bring the overall environmental impacts of combustion transportation down to effectively zero. Driving consumer shifts towards non-combustion vehicles, like electric vehicles, will reduce overall greenhouse gas

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<sup>2</sup> A combustion vehicle is defined in the policy as any on-road land motor vehicle which relies upon the combustion or oxidation of any carbon-based fuel (such as gasoline, diesel, or compressed natural gas [CNG]) for power or propulsion. Combusting or oxidizing carbon-based fuels results in the creation of carbon dioxide, regardless of whether it is emitted.

emissions globally: on a life-cycle basis, electric vehicles have significantly lower overall greenhouse gas emissions<sup>3,4</sup>.

#### CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The proposed policy is categorically exempt from CEQA under CEQA Guidelines Sections 15307 and 15308.

#### RATIONALE FOR RECOMMENDATION

CEAC recommends adopting the attached ordinance to prohibit the use of City streets for the operation, parking, or idling of combustion vehicles beginning in 2045, with certain exemptions, in order to achieve the City's carbon reduction and fossil-fuel-free goals.

In order to reach carbon neutrality without a significant, dramatic, and costly annual expenditure in carbon offsets to neutralize emissions, Berkeley needs a long-term strategy to both drive behavior change among all who work, play, or frequent our city, and to raise any funds that may be required to procure the necessary offsets in 2045. This proposed policy achieves that without encountering insurmountable legal barriers.

Berkeley is extremely unlikely to meet its carbon reduction and fossil-free goals without aggressive action on transportation decarbonization. Expanding efforts to drive EV uptake is critical, and CEAC believes that setting a sunset date for combustion vehicles will dramatically improve the success of EV uptake efforts. It may ultimately be the only way to ensure a full citywide transition to decarbonized transportation.

Structuring enforcement of the prohibition as enforcement of an emissions-free zone throughout most streets in the city, with a fee to enter with a combustion vehicle, aligns the policy with existing domestic and international legal precedent for congestion and low-emission zones, and ensures it is not a de facto mandate or an undue burden. Depositing any excess fees collected into a restricted fund for sustainability projects and programs, and particularly zero-emission transportation initiatives, ensures the fees are used appropriately.

In order to ensure full compliance with all applicable state and federal law and precedents, CEAC recommends a limited set of exemptions to minimize undue burdens to interstate commerce, ensure ongoing public services and public safety, and comply with other state and federal preemptions.

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<sup>3</sup> Cleaner Cars from Cradle to Grave, Union of Concerned Scientists: <https://www.ucsusa.org/clean-vehicles/electric-vehicles/life-cycle-ev-emissions> (accessed September 2019)

<sup>4</sup> Life Cycle Analysis of Electric Vehicles, University of British Columbia: [https://sustain.ubc.ca/sites/default/files/2018-63%20Lifecycle%20Analysis%20of%20Electric%20Vehicles\\_Kukreja.pdf](https://sustain.ubc.ca/sites/default/files/2018-63%20Lifecycle%20Analysis%20of%20Electric%20Vehicles_Kukreja.pdf) (accessed September 2019)

### ALTERNATIVE ACTIONS CONSIDERED

CEAC considered taking no immediate action and instead waiting to see the impacts of the City's planned EV roadmap. However, upon consideration and recognition of the roadmap's finding that consumers must begin planning for full decarbonization 15-20 years in advance, we determined that waiting 5-10 years to evaluate the impacts of the EV roadmap strategy would not ensure Berkeley is able to meet its carbon neutral target. Instead, CEAC believes that this policy would lend weight and import to the EV roadmap strategy, as it is short- to medium-term plans like the EV roadmap that will make this larger, full decarbonization effort feasible in 25 years – without both working together, neither are likely to be successful.

CEAC considered a gradual, phased approach that would restrict combustion vehicles on a narrower set of streets initially, and over time expand that to include more of the city. While the city can expect a gradual, phased increase in the use of electric vehicles, it is likely to be dispersed throughout the city as residents, apartments, and businesses install chargers or purchase vehicles over time. Other policies, such as those proposed in the EV roadmap, will help encourage and accelerate this gradual uptake; however, phasing certain streets into a combustion-free zone did not provide a clear benefit and could, ultimately, reduce in an *increase* in greenhouse gas emissions as combustion vehicles attempt to route around limited areas which are combustion-free.

CEAC also considered a less stringent enforcement mechanism, but determined that weaker enforcement would dramatically reduce the effectiveness of the policy. CEAC also recognizes the ability of Council to direct the City Manager on enforcement priorities.

CEAC considered leaving excess fees collected as unrestricted revenue, but determined that would potentially hamper the ability of the city to achieve a just citywide zero-emission mobility transition.

### CITY MANAGER

The City Manager takes no position on the content and recommendations of the Commission's Report.

### CONTACT PERSON

Ben Gould, Chair, Community Environmental Advisory Commission, 510-725-9176

### Attachments:

- 1: Ordinance
- 2: Frequently Asked Questions
- 3: Analysis of Legal Considerations

ORDINANCE NO. -N.S.

AMENDING BERKELEY MUNICIPAL CODE TITLE 14 TO PROHIBIT THE  
OPERATION OF COMBUSTION-POWERED VEHICLES

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

Section 1. That the Berkeley Municipal Code Chapter 14.94 is added to read as follows:

**Chapter 14.94**  
**OPERATION OF COMBUSTION VEHICLES**

**Sections:**

<b>14.94.010</b>	<b>Findings</b>
<b>14.94.020</b>	<b>Purpose</b>
<b>14.94.030</b>	<b>Definitions</b>
<b>14.94.040</b>	<b>Prohibition</b>
<b>14.94.050</b>	<b>Enforcement</b>
<b>14.94.060</b>	<b>Exemptions</b>
<b>14.94.070</b>	<b>Severability</b>

14.94.010 Findings

A. Climate change, caused by the generation of carbon dioxide and other greenhouse gases, is harmful to human health and public safety, acting through increased risks of wildfire, drought, landslides, heat stress, sea level rise, disease, pests, environmental degradation, and other pathways.

B. The City of Berkeley has adopted a goal of carbon neutrality by 2045, becoming a fossil fuel free city, and reducing greenhouse gas emissions by 80% below 1990 levels by 2050.

C. The State of California has adopted the goal of carbon neutrality by 2045, and reducing greenhouse gas emissions by 80% below 1990 levels by 2050.

D. Combustion vehicles are responsible for over 60% of the greenhouse gas emissions attributable to the City of Berkeley.

E. At present, over 95% of all vehicles traveling through the City of Berkeley are combustion vehicles. In 2017, only 17% of new vehicles registered in the City of Berkeley were plug-in vehicles.

F. In order to reach carbon neutrality by 2045, projections show that there must be an aggressive and unprecedented transition to electric vehicles.

G. Berkeley's current rate of uptake is not projected to reach the goal of carbon neutrality before 2045.

H. The California Vehicle Code (CVC § 21101 (c)) grants cities the authority to regulate the use of certain roads by certain vehicles.

I. The City of Berkeley is a charter city with jurisdiction over municipal affairs, including the use of public right of way.

J. Due to improvements in battery technology and declining costs, the prices of electric vehicles are expected to decline, becoming cost-competitive with traditional combustion vehicles in under 10 years and likely subsequently declining further, while the available range continues to further increase.

K. Disadvantaged and low-income communities have traditionally shouldered the brunt of the impacts associated with combustion vehicles.

L. Combustion vehicles, by the mechanics of their engine operation, exacerbate noise and heat issues in already increasingly noisy, hot cities and neighborhoods.

M. Combustion vehicles, by necessity of their design, transport and store hazardous, polluting chemicals as fuel – such as gasoline – which pose risks of contamination to air and water.

N. Combustion vehicles, by necessity of their design, transport and store hazardous polluting chemicals as fuel which pose serious risks of fire and explosion, threatening health, property, and public safety.

O. Advancing the adoption of non-combustion vehicles helps make them more affordable and supports the expansion of supportive infrastructure.

P. The State of California, as well as Bay Area counties, cities, and community choice energy providers are working to increase equitable access to alternatives to combustion vehicles, such as by supporting electric vehicles and charging infrastructure.

Q. Achieving a transportation system which is nearly 100% decarbonized is feasible and viable by 2045.

R. Significant action at the local and state level is required to drive full decarbonization by 2045.

14.94.020 Purpose



The purpose of this chapter is to promote the health and safety of Berkeley residents and visitors, to address environmental impacts and prevent climate change from the emission of greenhouse gases resulting from the combustion of fossil fuels used for transportation, and to fulfill upon the intent of the voters as expressed in Berkeley's 2006 Measure G.

#### 14.94.030 Definitions

For the purposes of this chapter, the following words and phrases shall have the meaning respectively ascribed to them by this section:

A. "Combustion vehicle" shall mean any on-road land motor vehicle which uses the combustion or oxidation of any carbon-based fuel to provide power or propulsion.

B. "Carbon offset" shall mean a competitively procured, third-party verified project or program which, with the funding provided through the purchase of the offset, results in the permanent, indefinite storage or sequestration of carbon dioxide.

C. "Greenhouse gas" shall mean any planet-warming chemical which is a gas at standard temperature and pressure, and for which anthropogenic sources are disproportionately responsible for their presence in the atmosphere including, but not limited to, carbon dioxide, methane, nitrous oxides, hydrocarbons, hydrofluorocarbons, hydrochlorofluorocarbons, and others.

D. "Combustion Vehicle Carbon Offset Program" shall be any program through which the City of Berkeley assesses its attributable share of emissions from any combustion vehicles passing through its city limits using a standard and widely accepted methodology, and acquires and retires carbon offsets equal to the attributable emissions from those combustion vehicles.

E. "Green Initiative Fund" shall be any program through which the City of Berkeley dedicates and allocates funding for programs and projects which improve environmental sustainability, including but not limited to reducing greenhouse gas emissions, improving energy efficiency, reducing or diverting waste, reducing or cleaning up pollution, reducing or cleaning stormwater runoff, improving resiliency, and reducing dependency on automobiles.

#### 14.94.040 Prohibition

Beginning January 1<sup>st</sup>, 2045, it shall be unlawful to operate any combustion vehicle upon any public streets or highways exclusively under the jurisdiction of the City of Berkeley.

Beginning January 1<sup>st</sup>, 2045, it shall be unlawful to park or idle any combustion vehicle upon any public street or highway exclusively under the jurisdiction of the City of Berkeley.

#### 14.94.050 Enforcement

A. Beginning January 1<sup>st</sup>, 2045, any combustion vehicle operating, parked, or idling upon any public street or highway exclusively under the jurisdiction of the City of Berkeley shall pay a fine for each calendar day in which it is found operating, parked, or idling.

B. The City of Berkeley shall set the fine amount annually based upon the cost of operating the Combustion Vehicle Carbon Offset Program and the cost of enforcing and collecting the fine.

C. Fines collected shall be used to pay for the Combustion Vehicle Carbon Offset Program and the staff time required to enforce and collect the fines.

D. At the end of each fiscal year, any fines collected in excess of those needed to cover the full cost of the Combustion Vehicle Carbon Offset Program and the staff time spent enforcing and collecting the fines, shall be deposited into the City's Green Initiative Fund, to support programs and projects which facilitate and encourage the use of zero-emission modes of transportation, including but not limited to pedestrian improvements, bicycle and scooter lanes, public transit infrastructure, public electric vehicle charging, and/or educational programs.

E. Fines shall be levied equally across all combustion vehicles, independent of vehicle make, manufacturer, type, class, model year, date of manufacture, date of sale, operator, place of registration, or other factor.

#### 14.94.060 Exemptions

This Section shall not apply to:

A. Combustion vehicles owned or operated by: government bodies, utilities or telecommunications providers, healthcare providers, emergency services, paratransit services, or passenger stage corporations (as defined in PUC § 1031).

B. Combustion vehicles operating, parked, or idling upon the I-80/I-580 corridor, State Route 123 (San Pablo Ave), State Route 13 (Ashby Ave, and Tunnel Road between Claremont Ave and Hiller Dr.), or other designated state or federal highways at the time of enforcement.

C. New motor vehicles, as defined in the Clean Air Act under 42 U.S. Code § 7550(3), where "the term 'new motor vehicle' means a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser." However, for imported vehicles, the term "new motor vehicle" means "mean a motor vehicle and engine, respectively, manufactured after the effective date of a regulation issued under [42 U.S. Code § 7521]... which is applicable to such vehicle or engine (or which would be

applicable to such vehicle or engine had it been manufactured for importation into the United States).”

#### 14.94.070 Severability

If any section, subsection, sentence, clause or phrase of this chapter is for any reason held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining portions of this chapter. In addition, the City Council hereby declares that it would have passed the ordinance codified in this chapter, and each and every section, subsection, sentence, clause or phrase not declared invalid or unconstitutional without regard to whether any portion of this chapter would be subsequently declared invalid or unconstitutional.

## Frequently Asked Questions

### *Is this even legal?*

In developing this approach, several potential legal barriers were considered and evaluated. None were found to expressly prohibit, and several actually reinforce the underlying legal principles behind this approach. See Appendix 2 (Attachment 3) for more information.

### *Why set policy so far in advance? Why not take a more incremental approach?*

Traditional policy approaches have worked on much narrower time horizons, such as 3-5 years. However, traditional policy approaches have never attempted a wholesale transformation as complete and thorough as that which we must achieve within the next 30 years to maintain a habitable planet. Nor have the stakes ever been this high.

Fundamentally, this policy is intended to help reshape public expectations and decision-making at a grand scale – while traditional policies have aimed to achieve incremental, progressive improvements, this one aims to achieve a world in which we truly achieve zero emissions. The types of decisions and planning which must be made to achieve that cannot be affected by implementing this policy one street at a time.

### *Electric vehicles are expensive. Won't this disproportionately impact low-income and disadvantaged communities?*

An additional concern raised by this proposed policy is equity concerns and access to electric vehicles by low-income and disadvantaged communities.

Electric vehicles across all on-road types are expected to be widely available and achieve cost parity, if not savings, within the next decade (by 2030). Both Bloomberg and the International Council for Clean Transportation expect price parity for passenger vehicles to be achieved between 2022<sup>5</sup> and 2028<sup>6</sup>, respectively. Bloomberg has already found that electric buses are cheaper today, in 2019, on a total cost of ownership basis across nearly all use cases, and will achieve unsubsidized parity by around 2030<sup>7</sup>. For trucks, McKinsey Energy Insights expects light- and medium-duty trucks running regional and urban trips to reach cost parity by roughly 2028. Long-haul trips and heavy-duty trucks may not achieve cost parity until after 2030, although they have economical use cases much sooner<sup>8</sup>.

Because EVs are anticipated to reach parity before 2030, there is almost certain to be a wide variety of options available, both new and used, at a mix of price points, by the

<sup>5</sup> <https://about.bnef.com/blog/bullard-electric-car-price-tag-shrinks-along-battery-cost/>

<sup>6</sup> <https://theicct.org/publications/update-US-2030-electric-vehicle-cost>

<sup>7</sup> <https://about.bnef.com/blog/electric-buses-cities-driving-towards-cleaner-air-lower-co2/>

<sup>8</sup> <https://www.mckinseyenergyinsights.com/insights/new-reality-electric-trucks-and-their-implications-on-energy-demand/>

time this policy takes effect in 2045. Furthermore, the availability of EVs for low-income communities in 2045 depends heavily on consumer and government choices over the next 25 years; a policy like this would likely only expand the availability of EVs compared to a business-as-usual scenario.

Low-income and disadvantaged communities today are disproportionately impacted by the effects of air pollution and climate change. Implementing this policy will result in significant benefits to these communities.

*How will this be enforced? Won't it disproportionately impact low-income and disadvantaged communities?*

As 2045 approaches, Berkeley could further ensure the policy will be enforced in an equitable fashion by adding flexibility through amendments or direction to the city Manager on enforcement approaches.

A variety of mechanisms exist for enforcement. Because any combustion vehicle has a tailpipe, it is relatively easy to spot a combustion vehicle during ordinary parking enforcement activities or on standard police patrols, minimizing surveillance concerns. If Berkeley chooses to invest in automated billing systems (such as for a congestion pricing zone), or if vehicle position information is shared on a network (such as for autonomous vehicles), billing could be done automatically.

Equity and affordability challenges could be addressed by setting a cap on fees levied annually based on a certain percentage of household income, or a permitting system could be established to grant exemptions to enforcement. Either of these approaches would work with a variety of enforcement mechanisms. Due to the likelihood of significant technological change in the intervening decades, and the uncertainty around non-combustion vehicle uptake and availability for low-income households, these issues would need to be evaluated at a future date.

Furthermore, low-income and disadvantaged communities today are disproportionately impacted by the effects of air pollution and climate change. Implementing this policy will result in significant benefits to these communities.

*Where will all these electric vehicles charge? What about people who can't charge at home?*

City staff are in the process of developing an EV Roadmap, which will include recommendations for expanding EV charging citywide, particularly to serve low-income and multi-unit building residents. These approaches will include expanded workplace and public charging (e.g., at grocery stores and parking garages), as well as curbside charging in neighborhoods and commercial districts. Over the next 25 years, Berkeley should have ample time to prepare for a dramatic increase in the usage of electric vehicles.

*Have other cities enacted similar policies?*

The City of London has enacted a low-emission zone<sup>9</sup> and, within it, an ultra-low emission zone<sup>10</sup>. These zones charge fees to drivers of polluting vehicles on a daily basis to drive within the zone, with a comprehensive program for enforcement across vehicle types and considering needs for discounts and exemptions. Numerous additional cities in Europe have created low-emission zones<sup>11</sup>, frequently targeting diesel vehicles (which are more prevalent due to the popularity of diesel automobiles). The city center of Paris prohibits larger and older vehicles<sup>12</sup>, while Barcelona is in the process of establishing a similar low-emission zone<sup>13</sup> for older vehicles which do not meet more modern emission standards.

No city has yet enacted a low-emission zone in the United States, though New York has discussed congestion pricing<sup>14</sup> and San Francisco has set forth the goal of achieving 100% of trips taken by sustainable modes by 2040<sup>15</sup>. Berkeley could be the first city in the world to pass a law establishing a future zero-emission zone, and play a leadership role in supporting other cities regionally, nationally, and globally in moving towards a clean and sustainable future for transportation. Berkeley's unique political environment empowers it to advance groundbreaking, socially conscious environmental policy, helping clear the way for other cities to follow suit.

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<sup>9</sup> Transport for London, "Low Emission Zone": <https://tfl.gov.uk/modes/driving/low-emission-zone>.

<sup>10</sup> Transport for London, "Ultra Low Emission Zone": <https://tfl.gov.uk/modes/driving/ultra-low-emission-zone>.

<sup>11</sup> Wikipedia, "Low-Emission Zone": [https://en.wikipedia.org/wiki/Low-emission\\_zone](https://en.wikipedia.org/wiki/Low-emission_zone).

<sup>12</sup> Environmental Badge, "Ecological zone Paris": <https://www.environmentalbadge.com/eco-zone-paris/>.

<sup>13</sup> Distintivo-Ambiental.es, "The LEZ Barcelona/City environmental zone": <https://www.distintivo-ambiental.es/en/info-menu/die-umweltzonen/barcelonacity-lez.html>

<sup>14</sup> The New York Times, "Confused about congestion pricing? Here's what we know": <https://www.nytimes.com/2019/04/24/nyregion/what-is-congestion-pricing.html>

<sup>15</sup> Mayor's Electric Vehicle Working Group Electric Mobility Subcommittee, "Proposed Electric Vehicle Roadmap for San Francisco": [https://www.sfmta.com/sites/default/files/reports-and-documents/2019/07/evroadmap\\_final\\_june2019.pdf](https://www.sfmta.com/sites/default/files/reports-and-documents/2019/07/evroadmap_final_june2019.pdf)

## **Analysis of Legal Considerations**

In reviewing the potential legal barriers to implementation, CEAC consulted with environmental lawyers with particular expertise in clean air and transportation issues from Coltura, EarthJustice, Sierra Club, and Environmental Defense Fund. The considerations identified are explained below.

### **Federal Preemption**

Federal laws which conflict with state or local laws trump those laws, under the Supremacy Clause of the U.S. Constitution. There are several federal laws which may potentially conflict with this proposed policy. Fortunately, in determining federal preemption, the courts generally start “with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress.” *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 485 (1996).

In passing the Clean Air Act, Congress found that “air pollution prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments” (42 USC § 7401(a)(3)). In *Huron Portland Cement Co. v. Detroit*, 362 U.S. 440, 442 (1960), the Supreme Court found that “Legislation designed to free from pollution the very air that people breathe clearly falls within the exercise of even the most traditional concept of what is compendiously known as the police power.”

As a result, local laws to regulate air pollution, such as the emission of carbon dioxide and other greenhouse gases, fall under the traditional scopes of local authorities. Federal laws which may conflict must demonstrate clear legislative intent to supersede this authority.

### **Relating To Consideration**

When federal laws are intended to preempt local regulations, they frequently prohibit states and cities from implementing laws “related to” the area under federal concern. For example, the Clean Air Act prohibits states and cities from adopting standards “relating to” the control of emissions; the Energy Policy Conservation Act prohibits states and cities from adopting laws “related to” fuel economy standards; and the Federal Aviation Administration Authorization Act (FAAAA) prohibits states and cities from enacting laws “related to” the price, route, or service of any motor carrier.

Under an extremely broad interpretation of “related to”, it is possible that just about any policy could be construed as “related to” a preempted area, as it could have indirect effects on that area. For instance, the recent increase in bridge tolls throughout the Bay Area to raise funds for public transportation could be construed as “related to” the price of motor carriers, as higher bridge tolls leads to higher prices, and thus it could be argued that it would be pre-empted under the FAAAA.

However, prior case law indicates that laws and regulations which are not directly related are not preempted. For example, in *Californians for Safe and Competitive Dump Truck Transportation v. AFL CIO*, the Ninth Circuit Court of Appeals found that while California's Prevailing Wage Law has effects on price, routes, and services of motor carriers, it is only an indirect, remote, and tenuous effect and thus not pre-empted by the FAAAA.

More broadly, the Supreme Court decision in *California Division of Labor Standards Enforcement et al. v. Dillingham Construction, N.A., Inc., et al* provides further precedent as to what laws are considered "related to" under federal preemption: the unanimous opinion finds that laws are preempted if they impose requirements by reference to, or a connection with, an area of preemption. In a concurring opinion, Justice Scalia, joined by Justice Ginsburg, wrote that "the 'relate to' clause of the preemption provision is meant, not to set forth a test for preemption, but rather to identify the field in which ordinary field preemption applies."

As a result, "related to" can broadly be understood to apply if the laws under question are within the field identified by the area of preemption, and if the laws also impose requirements by reference to, or in connection with, an area of preemption.

### **Potential Federal Preemption**

#### **Clean Air Act (CAA)**

The Clean Air Act grants the federal government authority to set emission standards for new vehicles (and provides California the opportunity to set its own, subject to findings by the EPA). Local jurisdictions are expressly prohibited from setting emission standards for, or otherwise regulating emissions of, new vehicles, as stated in 42 U.S. Code § 7543(a): "No state or any political subdivision thereof shall adopt or enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part."

Two key components of § 7543(a) must be further defined. Firstly, as used in this section, a "standard relating to the control of emissions" means an emission standard, as defined in 42 U.S. Code § 7602(k): "The [term]... 'emission standard' mean[s] a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under this chapter."

Secondly, 42 U.S. Code § 7550(3) defines "new motor vehicles" as "...a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser."



Ultimately, this means that states and cities are clearly preempted from setting standards that affect how vehicles are manufactured (with the exception that California may be granted a waiver from this preemption). Case law<sup>16,17</sup> has found that requirements to purchase certain vehicles based upon emissions is similarly subject to preemption.

This policy does not attempt to enforce standards for how vehicles are manufactured or sold based on emissions. Berkeley does not need to, and should not, make any attempt to set or enforce standards for emissions from new vehicles.

To achieve its goal of carbon neutrality under the standard greenhouse gas accounting methodology, Berkeley need only address the use of combustion vehicles for trips which start or end in Berkeley. However, combustion vehicles may be sold in Berkeley and stored or used on private property, or transported outside of the city and operated elsewhere, while having no impact on the city's overall emissions.

As a result, new vehicles (following the definition in § 7550(3)) are explicitly exempted from this policy (14.94.060.C).

As far as state and national emission standards for new motor vehicles are concerned, Berkeley's state and national elected leaders are champions for the environment and public health, and the city can reasonably rely upon them to advocate for the city's best interests in setting state and national policies on new vehicle emission standards.

Under the Clean Air Act, 42 U.S. Code § 7543(d) states that "Nothing in this part shall preclude or deny to any State or political subdivision thereof the right otherwise to control, regulate, or restrict the use, operation, or movement of registered or licensed motor vehicles."

While the Clean Air Act does preempt cities from regulating new vehicles, it largely defines those as unsold vehicles. Otherwise, it reinforces the principle that cities are permitted to use local police power to regulate the operation of vehicles.

#### Energy Policy and Conservation Act (EPCA)

The EPCA grants the federal government authority to set fuel economy standards for new vehicles, and subsequently prohibits local jurisdictions from "adopt[ing] or enforc[ing] a law or regulation related to fuel economy standards..." (49 U.S. Code § 32919(a)).

Berkeley is unconcerned with fuel economy (distance traveled per unit of energy), and this proposed policy has no relation to fuel economy standards.

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<sup>16</sup> *Engine Manufacturers Association v. South Coast Air Quality Management District*, 2004

<sup>17</sup> *Metropolitan Taxicab Board of Trade v. City of New York*, 2009

As with the Clean Air Act, Berkeley is concerned with the emission of greenhouse gases associated with the operation of combustion vehicles. The fuel economy of a new vehicle is not relevant. Furthermore, vehicles sold in Berkeley could be transported and operated outside of the city, or on private property, or pass through without stopping, without affecting the City's greenhouse gas emissions, and so Berkeley does not need to, and should not, make any attempt to regulate fuel economy of new vehicles.

This policy does not attempt to do so.

#### FAA Authorization Act (FAAAA)

The FAA Authorization Act (49 US Code § 14501) prohibits states and cities from enacting laws related to the price, route, or service of any motor carrier (a person providing motor vehicle transportation for compensation).

As previously discussed, under an extremely broad interpretation of "relating to", it is possible that this policy could be construed as "relating to" price, route, or service, as it could have indirect effects on prices or routes, or service (if the vehicle's method of propulsion is considered an element of a motor carrier's service).

However, this policy does not specifically reference or have a direct connection to motor carriers; nor does it directly affect prices, routes, or services; nor is it within the field of preemption intended under the FAAAA. As a result, under the precedent for areas of "related to" preemption, it is unlikely to be found to be in violation of the FAAAA.

#### Interstate Commerce

The "dormant commerce clause," derived from inferences of the Commerce Clause of the U.S. Constitution, requires that any local or state law which affects interstate commerce must not discriminate against out-of-state commerce, and must not be unduly burdensome, with exceptions available if there is no other way to achieve an important goal.

This policy may have impacts on interstate commerce, as either individuals or goods may travel across state lines to conduct business in Berkeley using a combustion vehicle. However, Berkeley's voters clearly consider reducing greenhouse gas emissions and achieving carbon neutrality to be an important goal, as evidenced by the overwhelming 82% support from voters for the 2006 Measure G. As Berkeley cannot physically prevent combustion vehicles from entering the city, there is no other way to achieve carbon neutrality without collecting the revenue necessary to offset the emissions associated with combustion vehicle trips.

The burden on interstate commerce is minimized by exempting the state and federal highways passing through Berkeley, and ensuring there are no criminal penalties associated with operating a combustion vehicle. Furthermore, Berkeley is a city well-

served by exceptional local and regional transit services, as well as bicyclist and pedestrian infrastructure, reducing the need to drive into or within the city. It is also in close proximity to ports, freight rail yards, and regional distribution centers, reducing the need for goods to be delivered by long-haul truck directly from the point of origin, and thereby reducing any burden from haulers which choose to switch to a zero-emission vehicle for final delivery within the city to avoid the carbon offset fee.

### **Potential State Preemption**

#### **Municipal Affairs**

Generally, local jurisdictions are preempted from regulating in areas which are subject to state control. Charter cities like Berkeley are granted authority over municipal affairs, but what exactly is considered a municipal affair is typically decided by the courts on a case-by-case basis. Frequently, courts will overturn arguments based upon municipal affairs if the state has already issued extensive regulations or legislation on the issue, or if there exists a paramount need for state control over the subject.

To date, the State of California has taken a mixed approach to achieving its statewide emissions reductions goals. In some areas, like energy, the State has taken a highly regulatory approach, setting renewable portfolio standards and implementing cap-and-trade. However, in areas relating to transportation, and in particular the strategies that local governments can deploy to reduce greenhouse gas emissions from transportation, the State has to date treated it as a municipal affair. SB 375, the Sustainable Communities and Climate Protection Act of 2008, has served as the cornerstone of the State's strategy for reducing vehicle miles traveled for over a decade. SB 375 directs the California Air Resources Board to set targets for regional emissions reductions from passenger vehicles, and subsequently wholly recognizes the right of regional and local governments to custom-tailor their approach to reducing VMT and transportation GHGs based upon local conditions and needs. Berkeley has traditionally set policies regulating the use of its local roads to achieve GHG and VMT reductions as though it is a municipal affair.

Berkeley's voters also clearly consider local reductions in greenhouse gas emissions to be a municipal affair. In 2006, an overwhelming 82% of Berkeley's voters supported Measure G, which proposed establishing a goal of 80% reduction in greenhouse gas emissions by 2050 and advising the Mayor to work on a Climate Action Plan. This direct mandate by Berkeley's voters calls for the city to take aggressive action, particularly if it finds the state's actions alone will not achieve the city's goals.

#### **California Vehicle Code**

The state's vehicle code generally sets the rules of the road and requirements for vehicles to ensure safety. In addition, CVC § 21101 (c) states "Local authorities, for those highways under their jurisdiction, may adopt rules and regulations by ordinance or resolution on the following matters... Prohibiting the use of particular highways by certain vehicles," except for passenger stage corporations, as provided in the Public

Utilities Code. Passenger stage corporations are granted an exemption from the proposed policy.

Based upon this section, it appears that the State considers regulating the use of local streets to be a municipal affair, and that prohibiting the use of local city streets by combustion vehicles is an application of local police power authorized under both state and federal law.

No other applicable laws, legal principles, examples from case law, or precedents were identified. As such, based upon review of the above considerations, there do not appear to be insurmountable existing federal or state legal barriers to implementing a policy of this type.



Community Environmental  
Advisory Commission

ACTION CALENDAR  
April 14, 2020

To: Honorable Mayor and Members of the City Council  
 From: Community Environmental Advisory Commission  
 Submitted by: Ben Gould, Chairperson, Community Environmental Advisory Commission  
 Subject: Prohibition on the Sale of Gasoline, Diesel, and Other Carbon-Based  
 Transportation Fuels by 2045

RECOMMENDATION

Review and refer to the City Attorney for finalization the attached ordinance prohibiting the sale of gasoline, diesel, and other carbon-based transportation fuels effective January 1<sup>st</sup>, 2045.

FISCAL IMPACTS OF RECOMMENDATION

Some staff time for review and finalization of the ordinance. Adoption of the ordinance itself may expose the City to potential fiscal impacts, including risk of a lawsuit and, if ultimately enforced, additional fiscal impacts from impacts to sales, property, and other tax or fee revenues.

CURRENT SITUATION AND ITS EFFECTS

Numerous Berkeley businesses are fossil fuel dealers, promoting the sale and use of carbon-based transportation fuels which are known to pollute our air, water, and soil; pose major fire risks; contribute to the risk of cancer; and are either potent greenhouse gases or, upon combustion, leading contributors to climate change.

These carbon-based transportation fuel dealerships – colloquially known as gas stations – are known to cause significant traffic and congestion, generate elevated levels of carcinogenic air pollutants in their local neighborhoods, and are frequently found to have leaked toxic chemicals into the ground, contaminating our soil and groundwater.

In 2018 alone, according to California Energy Commission data, over 20 million gallons of gasoline was sold in Berkeley at roughly 15 gas stations throughout the city. Ten of these gas stations had unresolved CalEPA violations as of October 2019.

The transportation of these fuels is also extremely dangerous. Vehicles transporting or storing fossil fuels regularly collide, leading to fuel spills or leaks – further contaminating water and/or soil and/or air – and posing major risks of fire or explosion, with the

potential for significant damage to property and harm to public safety. Alternatively, even if the vehicles themselves do not themselves have fuel leaks, the firefighting materials that must be used to prevent serious fires or explosions are themselves hazardous and difficult to clean up.

These fuels are typically used to power the operation of roughly 97% of all vehicles registered in the City of Berkeley. However, the City, County, and State are all working to dramatically increase the use and availability of vehicles which do not rely upon these hazardous chemicals. One such alternative – electric vehicles – are expected to reach price parity with traditional combustion-powered vehicles by roughly 2025. In addition, the City of Berkeley has adopted the goal of carbon neutrality by 2045, which – if successful – will require ending the use of these fuels.

There are also numerous other fossil fuel dealerships located outside of Berkeley, ensuring that these fuels are still accessible to anyone who is either unable or chooses not to switch to alternatives.

At a regular meeting on Thursday, November 14, 2019, the Community Environmental Advisory Commission unanimously approved a motion to send the *Prohibition on sales of Carbon-Based Transportation Fuels by 2045* recommendation to City Council (M/S/C) Gould, Hetzel. Ayes: Simmons, Varnhagen, Hetzel, Goldhaber, Gould. Abstained: De Leon. Absent: Ticconi.

## BACKGROUND

Berkeley has permitted and even encouraged the sale of transportation fuels for decades. In recent years the cumulative harmful impacts of these chemicals across environmental, health, and safety impacts has become clear, and recently the City Council adopted a Fossil Fuel Free Berkeley resolution, setting the goal of eliminating fossil fuels – the majority of which are carbon-based transportation fuels – in Berkeley.

Gasoline, diesel, and other carbon-based transportation fuels are known to be harmful chemicals, posing a variety of risks to human health, public safety, and the environment, both of their own virtue and as a result of their combustion or oxidation for powering transportation<sup>1,2,3</sup>.

These chemicals have the same health and safety risks and environmental impacts regardless of the source or feedstock – benzene, found in gasoline, is a known

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<sup>1</sup> Material Safety Data Sheet: Gasoline, All Grades, Vermillion County, IL: <https://www.vercounty.org/MSDS/EMA/9950allgradesgasoline.pdf> (accessed September 2019)

<sup>2</sup> Safety Data Sheet: Diesel Fuels, Valero: [https://www.valero.com/en-us/Documents/OSHA\\_GHS\\_SDS/SDS/SDS%20US%20-%20102-GHS%20DIESEL%20FUELS%20rev2%205-14.pdf](https://www.valero.com/en-us/Documents/OSHA_GHS_SDS/SDS%20US%20-%20102-GHS%20DIESEL%20FUELS%20rev2%205-14.pdf) (accessed September 2019)

<sup>3</sup> Safety Data Sheet: Natural Gas Odorized, Hess Corporation: <https://www.hess.com/docs/us-safety-data-sheets/natural-gas.pdf?sfvrsn=2> (accessed September 2019)

carcinogen whether it is derived from petroleum or from corn, and biodiesel poses the same fire risks as regular diesel. As a result, truly addressing the health and safety impacts of these chemicals requires addressing the chemicals regardless of their origination source.

The hazards of these chemicals are significant and acute, and even if the chemicals themselves do not escape into the environment or catch fire, the risk of them doing so is so severe that efforts to control or prevent them from doing so is similarly damaging.

In one recent instance in Berkeley, the cargo of a recycling truck caught fire. This recycling truck was also carrying compressed natural gas (CNG), a type of carbon-based transportation fuel. In a memo by the city manager, this fire was described as “extremely dangerous,” a “highly explosive threat to nearby people and homes,” and a “potentially explosive, deadly disaster,” due to the risk of the CNG either catching fire or heating up to the point of explosion. According to the memo, a similar garbage truck fire in 2015 created “an explosion that sent shrapnel in 360 degrees, including one compressed natural gas tank that flew a quarter of a mile.”

To put out this fire fast enough to prevent this potentially deadly explosion, the firefighting team deployed special foams originally designed to fight wildfires. These foams spilled into a storm drain and polluted Berkeley’s natural waterways, leading to the death of 63 threatened Central Coast California Steelhead Trout.

Even if Berkeley’s trucks were fueled with a renewable, non-fossil CNG, this near-disaster – and the lesser disaster that resulted from it – would have happened regardless. The health and safety risk derives from the chemical nature and composition of the fuels, not the feedstock used to create them.

#### ENVIRONMENTAL SUSTAINABILITY

Banning the sale of gasoline, diesel, and other carbon-based transportation fuels will improve local air quality, protect our soil and waterways, and improve public health and safety.

#### CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The proposed policy is categorically exempt from CEQA under CEQA Guidelines Sections 15307 and 15308.

#### RATIONALE FOR RECOMMENDATION

Eliminating the sale of these carbon-based transportation fuels will reduce one of the major environmental, public health, and safety hazards currently prevalent in the City of Berkeley.

Providing a 25-year phaseout period will ensure a smooth transition that businesses and individuals can successfully plan for without unconstitutionally taking or eliminating economic uses of property.

ALTERNATIVE ACTIONS CONSIDERED

CEAC considered taking no action, but determined that continuing to permit the sale of carbon-based transportation fuels would not achieve a fossil fuel free Berkeley, as set forth in the Fossil Fuel Free Berkeley resolution.

CEAC considered providing a carve-out exemption for carbon-based transportation fuels that are derived from non-petroleum / fossil sources. CEAC determined that such an exemption would be prohibitively difficult to enforce, and would not achieve the desired goal of reducing health and safety risks.

CEAC considered prohibiting only certain carbon-based transportation fuels, but did not find substantial health and safety, or environmental reasons which would justify permitting gasoline, diesel, or compressed natural gas but not the others.

CEAC considered a shorter phase-out period (such as 2040 or 2030) or a more extended one (such as 2050 or 2055) but determined that 2045 best aligned with other policies and programs in place, proposed, or likely at the local, regional, state, and national level to ensure that an adequate supply of vehicles and infrastructure to support non-combustion vehicles. However, it is possible that all of Berkeley's fossil fuel dealerships could go out of business sooner than 2045, due to a transition away from combustion fuel usage, in which case this policy would have no significant effect.

CITY MANAGER

The City Manager takes no position on the content and recommendations of the Commission's Report.

CONTACT PERSON

Ben Gould, Chair, Community Environmental Advisory Commission, 510-725-9176

## Attachments:

1: Ordinance



ORDINANCE NO. -N.S.

AMENDING BERKELEY MUNICIPAL CODE TITLE 9 TO PROHIBIT THE SALE AND TRANSPORTATION OF FOSSIL FUELS.

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

Section 1. That the Berkeley Municipal Code Chapter 9.98 is added to read as follows:

**Chapter 9.98  
SALE OF TRANSPORTATION FOSSIL FUELS**

**Sections:**

- 9.98.010 Findings**
- 9.98.020 Purpose**
- 9.98.030 Definitions**
- 9.98.040 Prohibition**
- 9.98.050 Severability**

9.98.010 Findings

- A. Carbon-based transportation fuels, such as gasoline, diesel, and others, are known to be harmful and hazardous chemicals, contributing to cancer, climate change, and known to pollute our local air, water, and soil.
- B. Carbon-based transportation fuels pose major fire and explosive hazards, with risk to public health and safety.
- C. The transport, storage, and sale of transportation fuels exacerbates all risks associated with these chemicals.

9.98.020 Purpose

The purpose of this chapter is to promote the health and safety of Berkeley residents and visitors, and to address environmental impacts and public health and safety impacts from transportation fuels.

9.98.030 Definitions

For the purposes of this chapter, the following words and phrases shall have the meaning respectively ascribed to them by this section:

A. "Transportation fuel" shall mean any gasoline, diesel, compressed natural gas, or other carbon-based fuel which is intended to provide power or propulsion to any land motor vehicle through its combustion or oxidation.

#### 9.98.040 Prohibition

Beginning January 1<sup>st</sup>, 2045, it shall be unlawful to sell, trade, or distribute any transportation fuel by any means anywhere within the City of Berkeley.

#### 9.98.050 Severability

If any section, subsection, sentence, clause or phrase of this chapter is for any reason held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining portions of this chapter. In addition, the City Council hereby declares that it would have passed the ordinance codified in this chapter, and each and every section, subsection, sentence, clause or phrase not declared invalid or unconstitutional without regard to whether any portion of this chapter would be subsequently declared invalid or unconstitutional.