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Transportation Planning Organization

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Meeting of the Bicycle Pedestrian Advisory Committee

Wednesday, June 22, 2022, 5:30 – 7:30 p.m.

County Center, 18th Floor – Plan Hillsborough Committee Room

All voting members are asked to attend in person, in compliance with Florida's Government in the Sunshine Law. Please RSVP for this meeting. Presenters, audience members, and committee members in exceptional circumstances may participate remotely.

Remote participation:

- To view presentations and participate your computer, tablet or smartphone: <https://attendee.gotowebinar.com/register/74823289096692496>
- Register in advance to receive your personalized link, which can be saved to your calendar.
- Dial in LISTEN-ONLY MODE: 1-631-992-3221 Access Code: 817-898-076
- Presentations, full agenda packet, and supplemental materials [posted here](#), or phone us at 813-756-0371 for a printed copy.
- Please mute yourself after joining the conference to minimize background noise.
- Technical support during the meeting: Chris English at (813) 836-7380.

Rules of engagement:

Professional courtesy and respect for others at this meeting are expected, and failure may result in dismissal from the meeting. For more information on expectations for participation, please see the TPO's [Social Networking & Media Policy](#).

Agenda

- I. Call to Order and Introductions**
- II. Roll Call and Declaration of Quorum** (Gail Reese, TPO Staff)
 - A. Vote of Consent for Remote Member Participation** – *if applicable*
- III. Public Comment** - 3 minutes per speaker, please

Public comments are welcome and may be given in person at this teleconference meeting by logging into the website above and clicking the "raise hand" button. Comments may also be provided before the start of the meeting by e-mail to reynoldsw@plancom.org. Written comments will be read into the record, if brief, and provided in full to the Committee members.

- IV. Members' Interests**
- V. Approval of Minutes** – May 25, 2022

VI. Action Items

- A. Public Participation Plan Amendments (2022)
(Davida Franklin, TPO Staff)

VII. Status Reports

- A. Hillsborough County Corridor Preservation Best Practices Report
(Richard Ranck, Hillsborough County Staff, Kristine Williams, CUTR)
- B. Tampa Vision Zero Implementation through Maintenance
(Cal Hardie, City of Tampa)

VIII. Old Business & New Business

- A. July Tri-County BPAC and Retreat

IX. Adjournment

X. Addendum

- A. TPO Meeting Summary and Committee Reports
- B. Asphalt Art Safety Study

The full agenda packet is available on the TPO's website, www.planhillsborough.org, or by calling (813) 272-5940.

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Se recomienda a las personas que necesiten servicios de interpretación o adaptaciones por una discapacidad para participar en esta reunión, o ayuda para leer o interpretar los temas de esta agenda, sin costo alguno, que se pongan en contacto con Joshua Barber, (813) 576-2313 o barberj@plancom.org, tres días hábiles antes de la reunión. Si sólo habla español, por favor llame a la línea de ayuda en español al (813) 272-5940 o (813) 273-3774 ext. 1.

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**HILLSBOROUGH COUNTY
TRANSPORTATION PLANNING ORGANIZATION
BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE
HYBRID MEETING OF MAY 25, 2022**

I. CALL TO ORDER

Chair Horst called the meeting to order at 5:30 PM

Members Present In-Person: Jim Shirk, Katrina Corcoran, Tim Horst, Jonathan Forbes, Robyn Baker, Allison Nguyen, Peter Davitt, Victoria Klug, Alain Watson

Members Present Virtually: Jason Jackman, David Aylesworth, John Kubicki, John Marsh, Faye Miller, Karla Price, Christopher Fellerhoff, Savana Vidal, Wanda Vinson

Members Absent/ Excused: Lynda Crescentini, Abigail Flores, Martin Santiago, Marcello Tavernari, Sally Thompson, Kelly Fearon

Others Present: Gena Torres, Christopher English, Connor MacDonald, Johnny Wong, Cheryl Wilkening (TPO Staff); David Dunnigan (Public)

An in-person quorum was met in person.

Jim Shirk moved to allow virtual participation, seconded by Alain Watson. The Voice vote passes unanimously.

II. PUBLIC COMMENT (3 minutes per speaker) (Timestamp 0:02:21)

Emailed public comment provided in the [Email section](#) at the end of the minutes.

III. MEMBERS' INTERESTS (Timestamp 0:03:34)

- A. Katrina Corcoran:** The Planning Commission is updating the City of Tampa Comp Plan, [Live Grow Thrive 2045: Tampa Comprehensive Plan Update](#), encouraging everyone to take the survey on the website.
- B. Tim Horst:** Has done a big bike loop from Sligh and Nebraska, around to Armature Works, use the Cycle Track, through Ybor, using 12th (neighborhood street); the Heights Mobility Plan is addressing challenges on Lola including additional crossings. Is advocating doing the same thing on 12th, on the other side of the highway; there are a couple of crossings that are challenging. This was made as a citizen request to the City of Tampa. This is a mix of city and county roads. Would like more information on the plans for this area.

- C. **Victoria Klug:** There is a challenge on Bayshore with pedestrians walking in front of cars quite often, particularly at Bay to Bay and Bayshore.
- D. **Chris Fellerhoff:** Asked for clarification on Tim Horst's request; is it to look into making 12th Street into a Bike Boulevard? Lola is also considering recommendations for that street. The answer is Yes, apply the boulevard concept on 12th and designate it as a bikeway.
- E. **Jim Shirk** noted that he and Christine Acosta are speaking at WFTS on May 26th to talk about Walk/Bike Safety.

IV. APPROVAL OF MINUTES (*Timestamp 0:13:38*) – February 23, 2022, March 23, 2022, and April 27, 2022.

Sally Thompson: emailed corrections for the April 27, 2022 meeting, noted below. Corrections made by Gail Reese, Recording Secretary, on May 31, 2022.

pg. 1 HC TPO Bicycle and Pedestrian Advisory Committee 4/27/2022 Meeting
HILLSBOROUGH COUNTY
TRANSPORTATION PLANNING ORGANIZATION
BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE
HYBRID MEETING OF APRIL 27, 2022

III. MEMBERS' INTERESTS (*Timestamp 0:04:21*)

A. Sally Thompson – Florida 2022 Trail Summit. Most of the discussion was about the Coast-to-Coast Connector and the St. Johns River to the Sea Loop. These projects are getting the bulk of the SUN Trail money.

The Trust for Public Land has recently hired a consultant who was a former Sarasota County Commissioner. He is working on closing the gaps along the southwest coast. One of those is the Gulf Coast Regional Connector. The coordinator is tasked with getting the counties to work together.

The summit was an opportunity to meet him and FDOT district offices 7 and 1 staff. Hopeful that there may be funding and interest to assist in the Hillsborough County portion of the Gulf Coast Regional Connector. It might be possible to get Federal funding.

Wade Reynolds reviewed where the Gulf Coast Trail goes. The Trust for Public Land has given money to other projects in the area. They are listed on their website.

Hillsborough County is now hiring a consultant to start working on updating the 1995 Hillsborough County Greenways Plan.

Allison Nguyen motioned to approve the April 27, 2022 minutes; seconded by Peter Davitt. The Voice vote passes unanimously.

V. ACTION ITEMS

A. Transportation Improvement Program (TIP) Update, FY 2022/23 – 26/27 (Connor MacDonald, TPO Staff) (Timestamp 0:14:40)

- Review of background information. The LRTP is the 25-year plan; the TIP represents the detailed version of the LRTP.
- Important TPO planning project and went over the approval process.
- Three sections:
 - Projects that are programmed for construction will remain in Table 1 until they are complete.
 - Table 2 is the list of candidates for new funding and seeking funding.
 - Table 3 is all other projects. Any project that has funding over the next five years; many fall into miscellaneous categories along with local CIP funding projects.
- Went over Table 2 in a bit more detail as this is what is approved each year.
 - TPO staff use criteria for prioritization
 - Make recommendations on funding to go over
 - Once adopted, the projects are placed on the TIP Tool on the website.
- Table 1 has been reformatted to make it clearer and easier to understand
 - Removed some projects as they have been completed
 - Went over new items for this year; projects that received funding
- Table 2 is the priorities list
 - State of Good Repair & Resilience – percent of transit assets that are not in a state of good repair.
 - Vision Zero – received a lot of requests for this area. Had to add additional filters to assist in prioritizing. Construction ready moved to the top. If there was no funding identified, it moved down the list. Used criteria to identify projects in high-crash corridors and then ranked projects near disadvantaged communities to break ties in the crashes per mile.
 - Smart Cities – improve reliability.
 - Real Choices When Not Driving – look at population density within a certain distance of paths and trails. Because there were so many safety projects, some were shifted here.
 - Major Investments for Economic Growth – connect people to jobs or are somewhat expensive for the TPO to use discretionary grants. If a safety project was more than \$5 million, they were put into this category.
- Next Steps
 - Regional Coordination – the Transportation Regional Incentive Program (TRIP) and Multi-Use Trail (MUT) priority lists will be presented for adoption by the Sun Coast Transportation Planning Alliance on June 10, 2022; reviewed the TRIP and MUT projects.
 - Tables 1 & 2 will be reviewed by partners
 - Funding recommendations have been shared
 - Presentation Schedule:
 - LRC & BPAC – May 25, 2022; CAC: June 1, 2022; TAC: June 6, 2022
 - Public Participation Plan – mailed fliers to properties near impacted areas, posted road signs; put ads in the newspaper; and posted to social media.
 - June 8th is the TIP public hearing.

Attachments:

TIP Flyer (English): [TPO June 8 TIP Hearing notice English](#)

TIP Flyer (Spanish): [Spanish TPO June 8 TIP Hearing notice](#)

Draft TIP, Table 1: [Table 1, Draft TIP for FYs 2022/23 - 26/27](#)

Draft TIP, Table 2: [Table 2, Draft TIP for FYs 2022/23 - 26/27](#)

[Draft FDOT Work Program Fund Summary](#)

[Priority Request Letters submitted to the TPO by the Jurisdictions | Plan Hillsborough](#)

Recommendation: Approve the FY22/23 – 26/27 Transportation Improvement Program Update and approve the TIP Priority List (Table 2).

Discussion:

Gena Torres noted that Table 1 is what has been funded. Table 2 is what can be weighed in on. It was pointed out that Vision Zero and Smart Cities projects are included in projects in other categories as well. Real Choices include things like trails and expanding bus projects. It was asked if the process was different from previous years. Yes. Clarification was asked if the priorities list is strictly created from applications submitted. Yes, and some are to finish projects that are already underway. The project to extend US92 in Plant City; the Northeast sector of Plant City is exploding. The extension of these roadways is going to be important in the near future. The corridor preservation draws a straight line; until the PD&E study is done to truly figure out what design will make sense; we are expected to preserve that right-of-way for projects not knowing if the roadway will go in that direction. It's been so far down the list for a lot of years. It was asked what triggers it to move up the list. There are 6000 homes going in there in the next five years. If the information has been received, it is a matter of funding and performance on the system. There is a Corridor Preservation presentation coming from the county. It was noted that this corridor is in the County Comp Plan. There was a question asked about who is able to have access to the TIP tables. It was also noted that the tables appear to be an expectation. It was asked what the purpose of the presentation was. It was clarified that the tables are public information on the Plan Hillsborough website on the TIP page (*noted in the references after the presentation notes above*). The purpose is for the TPO Committees to weigh in on what the community wants to be funded and what is important to them. Clarification was asked if Table 2 is listed in the order of priority and if the categories are also in order of priority. Yes, and the priority in each category is based on funding.

Jim Shirk moved to approve the TIP Update and the TIP Priority List and move it forward to the TPO Board for consideration; seconded by Peter Davitt. The Voice vote passes unanimously.

VI. OLD BUSINESS & NEW BUSINESS (Timestamp 0:37:43)

- A. It was noted that the Status Report was removed.** Katrina Corcoran reiterated that this item was the Live Grow Thrive 2045. The survey is open on the website. If anyone has any questions, they can feel free to contact her.

- B. July Tri-County BPAC and Retreat:** The Tri-County meeting is on July 27th and the July Retreat for this committee is on the same day. Would like to know if it should be held before or after the Tri-County meeting or move the retreat to July 13th or 20th? The retreat location is still up in the air. Hillsborough is hosting the Tri-County meeting. Jim Shirk noted that the Sierra Club has a small budget that could supply refreshments. Katrina Corcoran brought up that there could be a joint bike ride planned as well.
- C. Jason Jackman:** Bike/Walk Tampa is helping the UACDC with the iCAN program which is a bike program for people with disabilities the week of June 13th, noted that they are looking for volunteers for the program. <https://icanshine.org/ican-bike-tampa-fl/>
- D. Tim Horst:** Noted that he would like to see a social meeting sometime in the next month or two. Jonathan Forbes reminded everyone that any event of the BPAC would need to be organized and noticed according to the Sunshine Laws.
- E. Next meeting is on June 22, 2022.**

VII. ADJOURNMENT

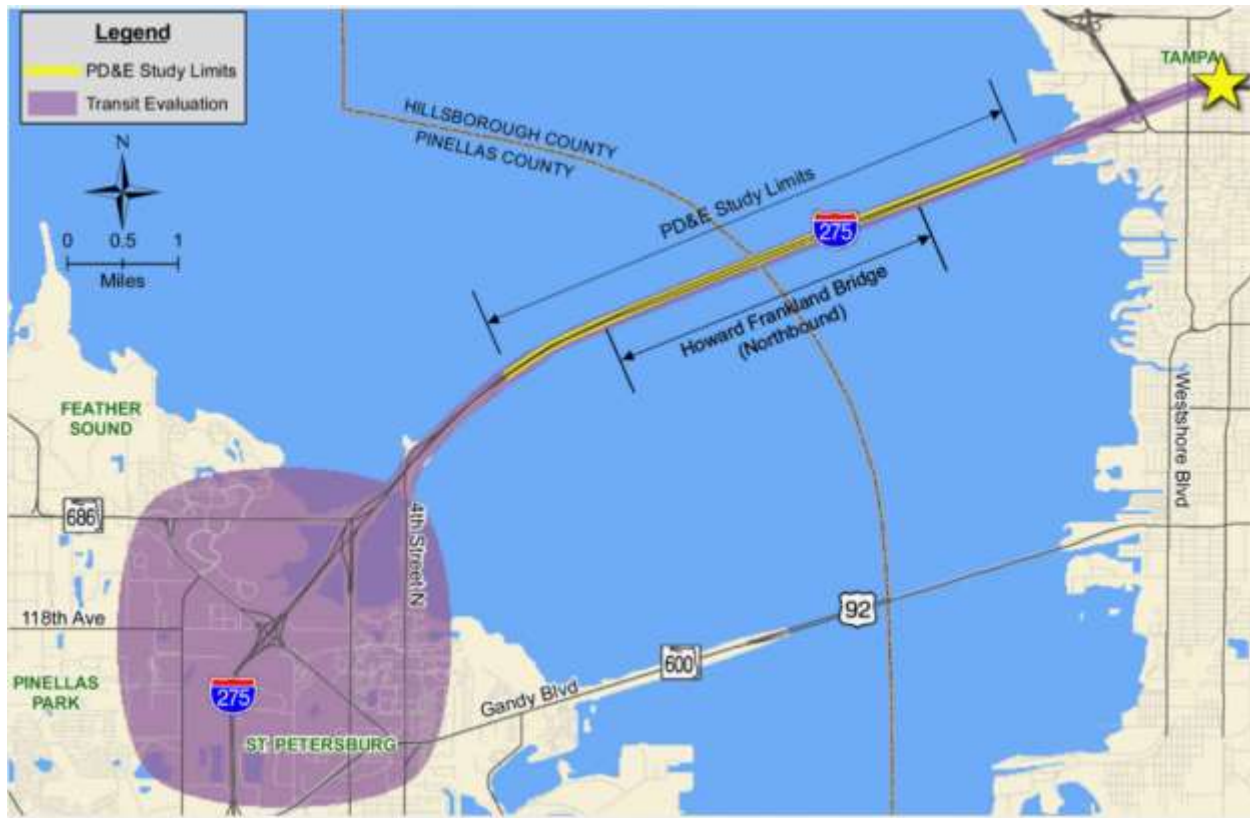
Meeting adjourned at 6:22 PM

A recording of this meeting may be viewed at:

https://www.youtube.com/channel/UCsojHyZb_mkYIU3o32Tbg4w/videos

Emailed Public Comment:

And later once all questions and concerns are satisfied: we will ask the HC/BPAC in the future to endorse this project -



The following was pitched this week to the Hillsborough County Tourist Development Council:

“ My name is neil cosentino I am a member of a small Hillsborough County based, all-volunteer, self-funded, public-interest think tank and a retired USAF fighter pilot.

My mission today is to introduce you to a new Green Tourism project and clean energy enterprise.

But First we thank you all - for all you do for County Tourism...which adds to our quality of life and standard of living mission...it is truly appreciated.

Camelot Florida has come to the TDC before - Jan Platt credited us with saving the Gandy Bridge and developing the Friendship trail and we were successful with TDC funding in getting Florida Hillsborough for the first time into the bid for the 2012 Olympics.

We like to think that started Tampa on a Roll.

We are here again with another first - an ICONIC GREEN UNICORN Tourism attraction.

- The Green Unicorn project that has three big wins:

Hillsborough Green Tourism - heads-in-beds WINS

We Hillsborough Taxpayers - WIN

Our Planet Spaceship Earth - WINS

We are all winners by Repurposing the I-275 Northbound Howard Frankland Bridge into a Green Tourism, Energy, Mobility and Recreation Venue.



The following was sent to you yesterday by the TDC staff.

We know how busy you are so I quickly review the highlights of why we should repurpose the Bridge, install a PV clean energy canopy and operate the bridge as a venue that supports Green Tourism.

The bridge is valued at over \$300,000,000 and is scheduled to be demolish at a cost of over \$35,000,000 when the new southbound 8 lane bridge opens in 2025 if on time.

The Bridge is 60' wide and 2.5 miles long and safe the day it closes for a maximum number of 40 ton vehicles on each span - dynamic loading.

The bridge has an FDOT 7 health and sufficiency rating at near 90% and will be rated at well-over 100% ... the repurposed bridge is being planned for a static and dynamic load limits of only 4 tons on each span.

One plan includes forming a Public-Private-Partnership (a P3) like that used by the TPA and TECO for us to install a 60' wide 2.5 + mile solar arrays canopy that will shade the new Green Cross Bay Tourism pedestrian and bike trail.

Sale of the clean energy (Kilowatt Currency) will pay to maintain the Green Tourism related bridge and operations.

If the chair would allow me I can quickly review the 26 win associated with the project? "

Thank you for this opportunity are there any questions?



This is a list of the many WINS when we repurpose the bridge:

Saves \$35,000,000 (bridge demolition cost)

Saves a \$300,000,000 public asset the Northbound I-275 bridge

Income from the sale of clean solar energy from the Solar Array

Bridge canopy used to operate and maintain the venue

Income from 24/7 Clean Energy from on the bridge pull over charging stations for Ecars, Eboats, Edrones...

Bridge venue events.I.e., flea markets, fishing, art festivals, water sports...

Increases our County/Metro Green foot print

Decreases our County/Metro Area Carbon foot print

Increases our County Metro Resiliency

- Increases our County/Metro Sustainability
- Increases rain water recovery
- Decreases Tampa Bay water pollution
- Creates a new shade covered bike & pedestrian trail
- Establishes an alternative route adds Hurricane evacuation lanes
- Provides an alternative route for bridge accidents closures
- Provides an alternate Tampa Bay crossing bridge for maintenance and repairs
- Provides an ICONIC tourism and visitor attraction
- Establishes a new business model for the production and sale of clean energy
- Provides a clean energy test bed site for low wind generators
- Provides a clean energy test bed site for for the harvesting of clean tidal energy
- Provides a testing site for increasing the longevity of concrete bridge in saltwater
- Provides new Clean Energy Jobs
- Provides for the development of Kilowatt Currency vs Bitcoin Crypto-NFTs
- Helps cool Spaceship Earth-One-Bridge-at-a-Time
- Creates a world-wide world-class clean energy venue
- Cyclists win a new Cross Tampa Bay bike trail
- Supports Green Tourism
- Super Venue for IRONMAN/WOMEN competition?



This is a WWW list ...a What Will Win list:

What is needed to save \$335,000,000+ & Repurpose the bridge:

- A SOS Bridge Team
- A Campaign Plan
- A SOS Website
- Social media for SOS
- A Fund Raising campaign
- Engineers - Electrical & Civil

Legal - Business Contracts

Media Campaign Managers

A Documentary film “ Saving Spaceship Earth One Bridge at a Time “

Prayers

LUCK

Endorsements from government agencies,,,

Other ?

We thank you for your consideration,

neil

Camelot Florida

The SOS Bridge Project

813-784-4669...

neil.cosentino@icloud.com

The Tampa Bay Public-Private-Partnership (P3) will provide leadership in the production & sale of clean energy.

Our hope is that both Hillsborough and Pinellas TDCs and others will in time - endorse the project.

FMI and the help SOS Array Bridge & Trail

Camelot Florida

Text [813-784-4669](tel:813-784-4669)



Hillsborough TPO Transportation Planning Organization

Board & Committee Agenda Item

Agenda Item

Public Participation Plan Amendments (2022)

Presenter

Davida Franklin, TPO staff

Summary

Engaging the public is critical to the Transportation Planning Organization's (TPO) success. Working with the community ensures TPO plans, and products better reflect the public's values and preferences. The Public Participation Plan (PPP) helps balance the professional and technical expertise brought to projects with the community's input and helps the TPO gain the broad support needed to ensure that transportation plans and programs are implemented.

At least once every two years, the TPO reviews its public participation and produces a Measure of Effectives (MOE) Report. The MOE was presented to committees last month and recommendations were made to improve the PPP:

- Increase digital and social media tools to increase engagement
- Institutionalize proactive outreach for TIP amendments
- Provide clarity about the TPO's roles and responsibilities in the planning process
- Use focus groups more often and consider target demographics
- Build culture awareness

Those changes will be highlighted in today's presentation and help set the stage for engaging the public in the update of the Long Range Transportation Plan (LRTP) to the year 2050.

Recommended Action

Approve the Public Participation Plan Amendments

Prepared By

Davida Franklin, TPO staff

Attachments

[Presentation slides](#)

[2020 Public Participation Plan](#)



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Hillsborough TPO Transportation Planning Organization

Board & Committee Agenda Item

Agenda Item:

Hillsborough County Corridor Planning and Preservation Best Practices Report

Presenter:

Kristine M. Williams, FAICP (CUTR) and Sarah Caper, AICP (Hillsborough County)

Summary:

In early 2022, Hillsborough County completed a [Corridor Planning and Preservation Best Practices Study](#) in anticipation of the recently started Corridor Preservation Plan. The purpose of the Best Practices Study was to provide insight and guidance on the current state of the practice in Florida, best practices within the State, and also best practices nationally, focusing on multimodal corridor planning and preservation.

The Study includes policy and planning context for corridor management in Florida, best practices for integrating land use context and modal options, and how resilience to climate change and emerging technology may be reflected in contemporary thoroughfare plans. The recommendations included in the study provide guidance on future corridor planning needs.

The presentation will provide an overview of the Best Practices Study and seeks input in updating the Corridor Preservation Plan.

Recommended Action:

None. For information only.

Prepared By:

Gena Torres, TPO Staff

Attachments:

[Presentation Slides](#)



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Hillsborough TPO Transportation Planning Organization

Board & Committee Agenda Item

Agenda Item:

Tampa Vision Zero Implementation through Maintenance

Presenter:

Cal Hardie, City of Tampa

Summary:

In 2019, Mayor Castor and the City's Transportation Advisory Team released five strategic recommendations to address a number of mobility related issues facing the City of Tampa. These recommendations include:

- Implement strategic transit projects
- Focus on trails and greenways as transportation options
- Adopt Vision Zero as a citywide policy
- Reinvent urban parking & mobility
- Enhance neighborhood engagement

Tampa MOVES (Mobility, Opportunity, Vision, Equity, and Safety) is the City of Tampa's new transportation plan to address these recommendations.

A major component of the MOVES effort is to implement Vision Zero. The City recently completed its first ever Vision Zero Action Plan, which details the strategies the City and its partners will take in the short-term to reach the goal of zero roadway fatalities and severe injuries. Staff will share highlight implementation of the Vision Zero Action Plan through maintenance projects.

Recommended Action:

None. For information only.

Prepared By:

Lisa K. Silva, AICP, PLA, TPO staff

Attachments:

- [City of Tampa MOVES webpage](#)
- [City of Tampa Vision Zero webpage](#)



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**HILLSBOROUGH TRANSPORTATION PLANNING ORGANIZATION BOARD
HYBRID MEETING, MAY 11, 2022
DRAFT MINUTES**

I. CALL TO ORDER, PLEDGE OF ALLEGIANCE (Timestamp 1:31:07)

Commissioner Cohen, called the meeting to order at 10:04 AM and led the pledge of allegiance. The regular monthly meeting was held in-person and virtual via WebEx.

II. ROLL CALL (Gail Reese, TPO Staff) (Timestamp 1:32:16)

The following members were present in person: Commissioner Harry Cohen, Commissioner Pat Kemp, Commissioner Kimberly Overman, Commissioner Mariella Smith, Councilman Guido Maniscalco (in at 10:35 AM), Councilman Joseph Citro, Mayor Andrew Ross, Commissioner Nate Kilton, Joe Lopano, Greg Slater, Charles Klug, Planning Commissioner Cody Powell

The following members were present virtually: Adalee Le Grand, School Board Member Jessica Vaughn

The following members were absent/excused: Commissioner Gwen Myers

Letter received from Commissioner Gwen Myers

5/11/2022

TPO Board Members,

Good morning, I apologize however due to an unforeseen event, I am unable to attend today's meeting. Please read this letter into the record.

A quorum was met in person.

A. Vote of Consent for Remote Member Participation.

Voice vote, motion passes with one "Nay" vote.

III. APPROVAL OF MINUTES (Timestamp 1:33:16) – April 13, 2022

Chair Cohen sought a motion to approve the April 13, 2022 minutes. Councilman Citro so moved, seconded by Commissioner Smith. Voice vote: motion carries unanimously.

IV. PUBLIC COMMENT (Timestamp 1:33:34) (30 minutes total, with up to 3 minutes per speaker)
Additional comments made via [Social Media](#) and [Email](#) can be found at the end of these minutes.

- Rick Fernandez – Out of Tampa Heights and is a Tampa Heights Civic Association member and Vice-Chair of the TPO CAC. Written comments have been submitted via email and additional verbal comments were made at the TPO Policy Meeting on May 11, 2022. It was asked that

the Public Participation Plan Effectiveness Report document be removed from the Consent Agenda and returned to the author(s) for correction/update where the DTI project is concerned. The CAC approved the report with the caveat that “The report needs to acknowledge the challenges over the last two years in communicating with the public about the design of the Downtown Interchange”. The request was made on May 4, 2022, and there has been no effort to supplement the report. It is not worthy of Consent Agenda treatment. The CAC has begun a review of the TIP draft. The three-lane movement making up the DTI Quick Fix are now on Table 1. The CAC has recommended that two of these lane movements be removed due to their impact on Tampa Heights. The third lane movement was the subject of a motion to strike in 2021 made by a TPO Board member. Suggests that that motion should be revisited in 2022. It was noted that if those that ran on the promise to fight the expansion of the interstate in the urban core of Tampa honor their commitments, this project can be stopped this year. There is also a matter of dedicated bus lanes on Florida Avenue and Tampa Street through a lane repurposing request from HART. Asks that this step be taken and that the dedicated lanes be included in the project descriptions for this year’s TIP in Table 1. They are currently not there. Referencing FPN #'s 511-7 & 511-8.

- Anthony Mangieri –A life-long resident of Hillsborough County, particularly the northwest area of the county. Explosive growth has put challenges on our local infrastructure. In the northwest county, Van Dyke Road between Dale Mabry and the Sun Coast Parkway, there has been explosive growth and land-use changes that have driven up traffic volumes to the point of needing additional lanes. These are needed for life safety for the hospital, the local fire station, and for the main hurricane evacuation route. There is a project on the books that was explored in 2014 with some funding and land acquisition for this expansion. That project has been continually delayed out to 2027 when the initial completion was scheduled for 2024. This is creating a life safety issue and this corridor has a high crash rate according to Hillsborough County Sherriff’s records. Are looking for some temporary, reasonable measures until the project can be moved forward. Is asking for further review of the timing of this project and some temporary engineering fixes for the short term.
- Lena Young Green – is continuing to request that Tampa Heights and the surrounding neighborhood be considered as further transportation decisions are being made. The community is back making the requests for consideration going into the TIP hearing in June. Ask that the impact of the extending roads and interstate lanes in our neighborhoods. It impacts us environmentally, socially, and in our health. Asked that Rick Fernandez’s presentation be supported.
- Mauricio Rosas – Emphasized what was said in the TPO Policy meeting earlier about land use. The county needs land use correction. If the current path is continued there will not be reasonable mass transit for the outer county. Segments D and E of the Green Artery have been funded but there is no record for construction dates. These projects are shovel-ready. Back to I-275; the underpasses at Osborne, Chelsea, and Floribraska are not uniform with MLK and Hillsborough Avenue. According to FDOT staff, the decision was arbitrary. All of those underpasses are constructed exactly alike. All of the underpasses in Ybor City and Westshore look the same. When

you go north, they don't look alike anymore. There is no placemaking, there is nothing identifying the area as East Tampa or Seminole Heights.

V. COMMITTEE REPORTS & ADVANCE COMMENTS (Bill Roberts, CAC Chair; Davida Franklin, TPO Staff; Beth Alden, TPO Executive Director) (*Timestamp 1:44:38*)

A. CAC – Bill Roberts, CAC Chair (May 4, 2022 meeting)

- In-person quorum voted to allow virtual members to participate.
- Heard public comment.
- Took action on:
 - Approved FY 23 & FY 24 UPWP
 - TPO Apportionment Plan Draft, as recommended with a 10 – 4 vote. There was considerable discussion.
 - Public Participation Plan Measures of Effectiveness Report (2020-2021) – with the caveat that the report needs to acknowledge the challenges over the last two years in communicating with the public about the design of the Downtown Interchange
- The CAC has held two workshops in preparation for the upcoming TIP. Will be taking action at the June 4th meeting.
- The committee discussed the standards of conduct coming before the Board and support them.
- Heard status reports on: Live Grow Thrive Tampa Comprehensive Plan Update, TIP Priorities Update: Preliminary Draft

B. ITS – April 14, 2022 (Davida Franklin, TPO Staff)

- Approved Smart Cities Mobility Plan
- Heard status reports on
 - Regional ITS Architecture – FDOT Statewide and Regional ITS Architecture website
 - Low-Cost Air Quality Monitoring Pilot Study
 - FY 23 & FY 24 UPWP Preliminary Draft
 - Introduction to new TPO Studies

C. TDCB – April 22, 2022 (Davida Franklin, TPO Staff)

- Held annual workshop seeking public engagement on the Transportation Disadvantaged Program
- Approved CTC Trip and Service Rates for 2022/2023
- Heard status reports on
 - FY 23 & FY 24 UPWP Preliminary Draft
 - Introduction to new TPO Studies

D. TAC – May 2, 2022 (Davida Franklin, TPO Staff)

- Approved
 - FY 23 & FY 24 UPWP Approval
 - Public Participation Plan: Measures of Effectiveness Report (2020-2021) - Members commented that they liked that outreach is being tracked and evaluated and agreed that the engagement on the Non-Discrimination Plan was very effective.

- The TAC heard a motion to approve the Apportionment Plan as recommended but the motion failed to pass, therefore no action was taken. Comments included:
 - HCAA commented that you cannot compare Hillsborough to other MPOs because most airports are owned by the County. In examples where there is an independent authority, they have voting seats. For example, Orlando International Airport has a voting seat on the MetroPlan Board. HCAA representatives speak for the Board, not the CEO. HCAA has a unique perspective as a transportation operator and should retain a voting seat. The Port Authority agreed with HCAA and finds the proposed plan disturbing.
 - Planning Commission, Hillsborough County, and City of Tampa representatives abstained from voting since their Boards have not taken a position.
 - Status reports heard – Transportation Improvement Program (TIP) Priorities Update: Preliminary Draft; Live Grow Thrive Tampa Comprehensive Plan Update; HCAA is updating its Master Plan
- E. LRC – March 23, 2022** (Councilman Citro, City of Tampa and Davida Franklin, TPO Staff)
- Took action on
 - TPO Membership Apportionment Plan Draft – the LRC did not approve the staff recommendation, instead moved that the TPO Apportionment be left Status Quo.
 - Councilman Citro (noted LRC discussion on the Apportionment Plan) – noted that the LRC had a lengthy discussion about the make-up of the TPO Board. It was the decision, not unanimous, to keep it status quo. There was the consensus that two members need to remain on the Board, the Port of Tampa and the Airport Authority. These are two major entities that deal with transportation in the county. Also felt that because of major highways intersecting in the City of the Tampa and the number of fatalities in the City of Tampa and the number of bicycle and pedestrian crashes in the City of Tampa that there should be another representative from the City of Tampa.
 - Public Participation Plan Measures of Effectiveness Report was approved.
 - Comments on ETDM Project #14486 (US 301 from Moccasin Wallow Road to SR 674 – The LRC moved to submit the staff comments, comment from a member of the public on behalf of the Sundance Community, and additional comments made by the committee on the topics of rural context, wildlife crossings, safety, and a request to return to the committee at the design phase.
 - Heard status reports and updates on: FDOT District 7 Safety Program, FY23 & FY24 UPWP Preliminary Draft, Introduction to new TPO Studies, memo on Government in the Sunshine, Live Grow Thrive Tampa Comprehensive Plan Update.
- F. BPAC – April 27, 2022** (Davida Franklin, TPO Staff)
- Did not have a quorum and were unable to take action but provided some comments.
 - Action Items
 - Public Participation Plan: Measures of Effectiveness Report (2020-2021) – expressed their appreciation for the report and continued outreach.
 - TPO Apportionment Plan Draft – Members had several questions on the proposal:
 - Is there an issue with the current distribution?
 - Would this put the City of Tampa at a disadvantage? (It was pointed out that County Commission Districts also include cities.)

- Should the independent agencies be removed? Some members expressed that they provided value and expertise to the conversation.
- Several agency staff commented that they would abstain since their agencies had not yet taken a position.
- Heard status reports on the following: the City of Tampa MOVES and Vision Zero Action Plan, Introduction to New TPO Studies, Live Grow Thrive Tampa Comprehensive Plan Update

G. TPO Policy Committee – April 13, 2022 Meeting (Beth Alden, TPO Executive Director)

- Reviewed two items on the Consent Agenda – Smart Cities Mobility Plan Update and the Public Participation Plan: Measures of Effectiveness Report. The Policy Committee supported approving these items.
- Reviewed a preliminary draft of the TIP Priority List which will be at the public hearing in June. There were some comments that the staff will be addressing.

H. Public Comments Received Through Email & Social Media (Davida Franklin, TPO Staff).

Detailed [Email](#) and [Social Media](#) are located at the end of the minutes.

VI. PUBLIC COMMENT FEEDBACK (Secretary David Gwynn) and Discussion with the TPO Board (Timestamp 1:56:20) – Secretary Gwynn noted that FDOT will contact the contractors to make sure the dust mitigation is being handled appropriately. It was also noted that the underpasses are still in process and FDOT is continuing to work with the community and the city to make them as pedestrian-friendly and welcoming as possible. Not all of them will have the same treatment. Are working with the City of Tampa for the artwork. The dedicated transit lanes on Florida and Tampa; there is a BRT plan that will, hopefully, operate from downtown to USF with transit-only lanes in that corridor. The Tampa Heights Mobility Project has a lot of elements in it including fixing drainage in order to have bus-only lanes. It started in Pinellas County. FDOT wants to set these roads up for BRT or a premium transit option. Many people support transit but, many also oppose transit-only lanes when there is only one bus an hour or 30 minutes. PSTA has committed to running premium transit. FDOT is taking the stance that they want these projects to succeed. Noted that the way they fail is by converting the lanes too early when the premium service is not there. The roads are being set up to be ready for conversion. However, a premium transit service needs to be there.

Discussion:

The dust from the DTI construction public comment during the Policy meeting was brought up to Secretary Gwynn. The person who spoke got sick from it. Secretary Gwynn found out about that this morning. FDOT will be following up with the contractor as to why that is happening as the condition described is not supposed to. It was asked if there is screening in addition to water. The contractor is given a measure to meet. Will look at this further and address it.

The sloped walls under the underpasses open up the sidewalk but do not open up the perception of safety. Opening them all the way up is preferred and that was indicated by Commissioner Overman. It seems as though the smaller streets are not receiving the same treatments. It is important when

we receive public input to hear it. FDOT has its own communications plan. These may be different. It's important to partner and work together. On the major arterials, MLK and Hillsborough, the underpass sidewalks are going to be 30 feet wide whereas the sidewalks on the smaller streets will be 15 feet wide with enhanced lighting. It was asked that the sidewalks and flooding be addressed on Florida and Tampa Street; what would be the timeline and what would be the penalties if the dates are not met. The City of Tampa has been doing this work and it does not appear to have progressed in six months. Having that experience on these streets would be painful. The contractors have to pay when they go over time and FDOT may look into providing incentives for early completion. There is really no drainage in these areas now. FDOT partners with the city. The overall construction for the Heights Grant is about three years. The most points were given for the grant due to the resiliency measures to handle the stormwater. Heavy construction will likely be two years and expect it to begin in about a year. This project is fully funded.

A lot of concerns have been expressed at the meetings. Some of the vibrations that residents are experiencing and were concerned about were actually a combination of the DTI but also the City of Tampa Pipes Program going on at the same time in the same area.

It was noted that HART is working closely with FDOT to go through the process of dedicated bus lanes.

VII. CONSENT AGENDA *(Timestamp 2:20:16)*

A. Committee Appointments

- LRC – Emmeth Duran, as an alternate member, by Institute of Transportation Engineers.

B. Smart Cities Mobility Plan Update

C. Public Participation Plan: Measures of Effectiveness Report (2020-2021) – reviewed by committees

Motion to approve the consent agenda from Commissioner Kemp, seconded by Commissioner Overman. Voice vote, the motion passes unanimously.

ACTION ITEMS *(Timestamp 2:20:37)*

A. FY23 & FY24 Unified Planning Work Program Approval (Amber Simmons, TPO Staff) *(Timestamp 2:20:55)*

- Review of what the UPWP is and its purpose and the steps in the Biennial Update
- Went over Major Planning Tasks.
 - Showed the six tasks and the new task 7 which is a Regional LRTP (shared funding)
 - Review of the budget and where funding comes from.
 - Went over the summary of FY 21 and 22 projects
 - Current DBE is at 14.5% of projects, state goal is 10.5%
 - Review of UPWP Development Schedule
 - Showed this year's partner agency requests for planning and analysis, critical path projects for FY 23 & FY 24, and other recommended projects

- Updated projects with approximate costs per the request of the CAC (I-275 Conversion Study, Phase 1)
- Reviewed projects in progress that will conclude in FY23

Presentation: [FY 23 and FY 24 UPWP Adoption](#)

Website: [UPWP website](#)

Recommended Action: Approve the FY 23 & FY 24 UPWP.

Discussion:

The Hillsborough County Truck Plan, it was asked if it is making the funded list. It is in the second column of our Critical

Councilman Maniscalco moved to approve the FY23 & FY24 UPWP, seconded by Councilman Citro. Voice vote, motion passes unanimously.

B. TPO Apportionment Plan (Elizabeth Watkins, TPO Staff) *(Timestamp 2:2744)*

- Review of background and requirements.
- Went over considerations – heard different concerns from the TPO Policy Committee and others.
 - Government in the Sunshine Law
 - Accountability to Residents. Analyzed 17 MPO/TPOs across the state of Florida, Hillsborough County has the least amount of elected officials making up the vote.
 - Population growth and the percentage of growth in the unincorporated county.
- Review of three Scenarios.
 - Showed breakdown of proposed votes on the TPO Board and summary table.
- Went over proposed TPO Board votes versus the 2020 census data.
- Summarized committee feedback from the TPO committees.

Presentation: [Hillsborough TPO Membership Apportionment Plan](#)

Draft: [TPO Apportionment Plan Draft](#)

Recommendation: Approve the TPO Apportionment Plan.

Discussion:

It was pointed out that 78% of MPO/TPOs similar to Hillsborough County have all elected officials. It was noted that the CAC, representing citizens, has recommended the plan. It was asked that everyone give extra thought to the Sunshine Laws and the inability to discuss topics that come to a vote on the TPO Board with agency experts. Non-voting members do not lose their ability to advise and influence the Board. The fact that Hillsborough County is an outlier in the state XXX. It was brought up that there is often a disconnect between land-use planning and transportation planning without having the entire BOCC on the TPO Board. In many jurisdictions, the municipality operates the Transit Authority. HART needs to be part of the planning and there is some hesitation about not having them on the Board. MPO/TPOs were set up by the federal government because communities were impacted by having major interstates going through the middle of them. The TPO gives the citizens a voice. The comparison was brought up with other regions in the state. It

was also noted that, currently, four out of five of the BOCC members on the TPO Board live in the City of Tampa. It was acknowledged that the citizens have the right to vote the members out if they are not representing them. The agencies were put on the TPO Board for their expertise. FDOT has a strong advisory role. The instance in Hillsborough County where the agencies are not managed by the county is rare.

It was noted in the statute that the TPO may include as part of its voting members, a member of statutory authority, an authorized planning board, an official of an agency that operates or administers a major mode of transportation, or an official of Space Florida. The other regions that have Port Authorities on their boards, those agencies are independent agencies in those counties. The Port Authority and Aviation Authority were created in 1945 by the legislature. The impact of these authorities represents the entire county. Port Tampa is the largest port in the State of Florida. They are very much responsible for transportation in the county. Their presence on the board ensures their planning and infrastructure improvements don't disparately impact the rest of the county and it is mutually beneficial. The I-4 connector is a prime example. There is a belief that there is too much emphasis on the representatives who are not elected officials. They are appointed by elected officials on the agency boards. If the members of this board do not act in a way that pleases their boards, they are held accountable. Excluding this representation removes the voice of major stakeholders in the county. It was noted that the only port represented on an MPO/TPO in the comparison list, Miami-Dade may be the only one close. Tampa Airport is the second largest in the country. This makes Hillsborough County an outlier by removing these transportation stakeholders.

It was noted that Hillsborough County is very different from the other MPO/TPOs being compared; Port Tampa Bay is expanding both in shipping and cruises; the Tampa Airport is a major US airport. Between the hours of 7A and 7P, the population of the City of Tampa doubles and are under-represented on the TPO Board.

Agency representatives are given direction from their Board of Directors on how to represent the agency and how to vote. Those Boards are made up of elected officials from the county and the city. Where the airport is concerned, 20 million travelers are represented. These travelers will not come back if they don't have good transportation experiences. There are also 17,000 employees being represented who have to get to work and back home. The sentiment is that the airport and the port are "great economic engines, you're off the Board, we don't want your vote." The airport built an automated people mover system to take cars off a congested roadway.

The agencies are supported by tax dollars. It is important that representation be on the board to keep continuity for long-range planning as elected officials won't be here. It was noted that in the land of politics, it is nice to have non-political voices once and add important perspectives. There are other boards in the county that makes important decisions about taxpayer dollars that are not made up of all elected officials such as Transportation Development and Tourism Development. It was brought up that the statute shows that it is intended to have non-elected officials on the MPO/TPO. All of the cities and counties around Florida are unique so having the Hillsborough TPO be different is not a bad thing; it reflects the county. The TPO Board is able to expand to 25 members and that would be a way to add elected officials to the TPO Board. Removing citizen voices would be unwise and does not meet the spirit of the statute.

Mr. Slater noted that he had not received direction from his board on this topic. However, he expressed that THEA reinvests 100% of its revenue back into the community, not just in roadways but in greenways, autonomous vehicle testing, and other technology testing. The objective should be to work together in a cooperative manner and an integrated manner.

It was noted that HART serves the entire county, and they are going through a transitional phase and looking at how best to utilize existing resources and attract new resources. The HART Board has engagement by elected officials and the monthly meetings are open to the public as well.

Commissioner Cohen noted that he received a letter from the Chair of the Hillsborough County Aviation Authority. [It was made available to the Board and is included at the end of the minutes.](#) It was stated that in order for there to be a change in the apportionment, there needs to be an agreement between the four municipalities, FDOT, and the Governor. Based on the discussion, the current plan does not have the support to pass and would likely not be supported by the Governor. Reservations were expressed during the Policy meeting about removing the Port Authority and the Aviation Authority. Elected officials that sit on agency boards have one vote on this board and do not have the ability to divide their vote. It was brought up that if it is the intent that more elected officials be added, that would be a compromised framework. That could be circulated to the local governments to see if there is support.

Commissioner Smith motioned to have staff take another look at the TPO Apportionment Plan and reconsider a plan that might adjust the representation of local governments based on representation while retaining the agencies; seconded by Councilman Maniscalco.

Discussion:

It was noted that the agencies are an integral part of the transportation system. The input is very valuable. It was noted that the increase in BOCC representation is based on population and not the variable population of a specific period of time or going beyond population trends versus importance.

Voice vote, motion passes unanimously.

C. Executive Director's Report (Cameron Clark, TPO Attorney) *(Timestamp 3:16:55)*

- Required by the MPO's agreement with the Planning Commission.
- Received numerous submittals from Board members; compiled them into an evaluation sheet that was submitted to the Board earlier. [\(Included after the minutes.\)](#)

Recommendation Action: To receive the evaluation.

Motion to approve from Mayor Ross; seconded by Mr. Lopano. Voice vote, motion passes unanimously.

VIII. STATUS REPORTS *(Timestamp 3:17:36)*

A. Tampa MOVES and Vision Zero Action Plan (Alana Brasier, City of Tampa) - deferred

- B. Bylaws Amendment: Code of Conduct** (Beth Alden, TPO Executive Director) *(Timestamp 3:17:44)*
- Required to be read in prior to action being taken.
 - Will be brought back as part of the Consent Agenda in June.
 - Would like feedback from the TPO Board.

Code: [Code of Conduct of Hillsborough County City-County Planning Commission](#)

IX. OLD & NEW BUSINESS - deferred

- A. **TPO Public Hearing June 8, 2022**, beginning at 6:00 PM.

X. ADJOURNMENT – The meeting adjourned at 11:58 AM

The recording of this meeting may be viewed on YouTube: [Meeting Recording](#)

Social Media

Facebook

4/8

In a post on the Transit Now Tampa Bay Facebook page about technical issues with the Selmon Expressway beautification project

Christopher Vela:

It is important to note that after I did a half-hour report on the historic travesties of this project ALONE (no I275 and I4) the Hillsborough TPO still rolled with THEA over their expansion project.

We deserve it. Until we get we get 100% new people in leadership.

In a post on the Transit Now Tampa Bay Facebook page about increasing pedestrian deaths

Christopher Vela:

Also in 2021 out Hillsborough TPO did nothing to stop TBNEXT which is so dangerous that it would be illegal for actual pedestrians to use. But in all seriousness from that actual truth (law) local roads will be quite dangerous by the interstate's exits where the TPO's Vision Zero Hillsborough hopes that paint saves lives.

Jesus...the world we live in.

“California, Florida and Texas led the nation in the number of pedestrian traffic fatalities in the first half of last year, accounting for 1,289, or 37%, of all pedestrian deaths.”

In a post on the Transit Now Tampa Bay Facebook page about the I-75 PD&E study

Christopher Vela:

In case you are wondering there are express lanes being planned on I75 in Hillsborough County.

Unlike how TBX started with the Hillsborough TPO not compelled to care about some of us urbanites, these more rural communities already get a running start.

It is all bad, but if I were FDOT, I could tell the TPO to shut it because they neglected unconditional promises of rail, sound walls, or other improvements in the inner city and more urban parts of the



Hillsborough TPO

Transportation Planning Organization

Committee Reports

Meeting of the Intelligent Transportation System (ITS) Committee on April 14

The ITS held its election of officers. Margaret Kubilins was reaffirmed as the Chair, Brian Gentry as the Vice-Chair and Jeff Sims as the officer-at-large.

The ITS Committee approved the following action item:

✓ Smart Cities Mobility Plan

TPO staff presented the vision statement and the purpose of the Smart Cities Mobility Plan. There were primarily four tasks – Existing project inventory and the production of a factsheet booklet, comparison of Tampa Bay’s current deployments against the inventory and across peer metros, new ranking methodology for TIP prioritization and community outreach. Committee members discussed about the challenges including maintenance and funding investment. The committee approved the Smart Cities Mobility Plan and recommended to the TPO Board.

The ITS Committee heard status reports on the following:

- Regional ITS Architecture

FDOT Central Office and the consultant presented a review of the FDOT Statewide and Regional ITS Architecture website which is currently being updated. The website helps the stakeholders and agencies to access the inventory of existing and planned systems across the region, the project information flows and the functional requirements. The website will be available to the public once the update is complete.

- Low-Cost Air Quality Monitoring Pilot Study

TPO staff presented an update on the low-cost air quality monitoring pilot study that is being conducted in partnership with the USF College of Public Health, Hillsborough County EPC and FHWA. The areas identified as part of the pilot study were Sulphur Springs, VM Ybor, South Nebraska. Committee members raised question about moving to a larger project. The long-term goal was to develop methods to establish a larger community monitoring network and for them to monitor the quality of the air around them.

- FY 23 & FY 24 UPWP Preliminary Draft

Staff presented the UPWP Preliminary Draft, with a review of the budget and a summary of the FY 21 and 22 projects. The final UPWP will be approved by the Board in May.

- Introduction to New TPO Studies

A brief overview of the upcoming TPO projects was presented.

Meeting of the Transportation Disadvantaged Coordinating Board (TD) on April 22

The TDCB held its annual workshop seeking public engagement on the Transportation Disadvantaged Program.

The TDCB approved the following action item:

- ✓ Community Transportation Coordinator (CTC) Trip and Service Rates for 2022/2023

The TD heard status reports on the following:

- FY 23 & FY 24 UPWP Preliminary Draft
- Intro to New TPO Studies

The Executive Director of the Sunshine Line provided their bimonthly update. Sunshine Line is gearing up to provide transportation to the Tampa Heights Civic Association for their Water Safety Program for the summer as well as the HCSO Homeless initiative. They're also gearing up for the opening of three new Aging Services sites. Otherwise, they are operating at less than 50% capacity for drivers and are having significant challenges recruiting and retaining vehicle operators as a result of non-competitive wages. On-time performance is at 87.3% last month, the lowest it's been in many years. Saturday service is being phased out currently as a result of the driver shortage, and trips are being prioritized into essential and non-essential trips.

Meeting of the Bicycle Pedestrian Advisory Committee (BPAC) on April 27

The BPAC did not make recommendations on any action items due to lack of a quorum:

- Public Participation Plan: Measures of Effectiveness Report (2020-2021)
 - Committee members expressed their appreciation for the report and continued outreach.
- TPO Apportionment Plan Draft - Members had several questions on the proposal:
 - Is there an issue with the current distribution?
 - Would this put the City of Tampa at a disadvantage? (it was pointed out that County Commission Districts also include the cities)
 - Should the independent agencies be removed? Some members expressed that they provide value and expertise to the conversation.
 - Several agency staff commented that they would abstain since their agencies had not yet taken a position.

The BPAC heard status reports on the following:

- City of Tampa MOVES and Vision Zero Action Plan
- Introduction to New TPO Studies
- Live. Grow. Thrive. Tampa Comprehensive Plan Update

Livable Roadways Committee (LRC) on April 27

The LRC took the following actions:

- χ TPO Membership Apportionment Plan Draft – The LRC did not approve the staff recommendation, instead moved that the TPO Apportionment be left Status Quo.
- ✓ Public Participation Plan Measures of Effectiveness Report was approved.
- ✓ Comments on ETDM Project #14486 (US 301 from Moccasin Wallow Road to SR 674 – The LRC moved to submit the staff comments, comment from a member of the

public on behalf of the Sundance Community, and additional comments made by the committee on the topics of rural context, wildlife crossings, safety, and a request to return to the committee at the design phase.

The LRC heard status reports and updates on:

- FDOT District 7 Safety Program
- FY23 and FY24 UPWP Preliminary Draft
- Introduction to new TPO Studies
- Memo on Government in the Sunshine
- Live. Grow. Thrive. Tampa Comprehensive Plan Update

Meeting of the Technical Advisory Committee (TAC) of May 2

The TAC approved the following action items:

- ✓ FY 23 & FY 24 UPWP Approval
- ✓ Public Participation Plan: Measures of Effectiveness Report (2020-2021) - Members commented that they liked that outreach is being tracked and evaluated, and agreed that the engagement on the Non-Discrimination Plan was very effective.
- χ The TAC heard a motion to approve the Apportionment Plan as recommended but the motion failed to pass, therefore no action was taken. Comments included:
 - HCAA commented that you cannot compare Hillsborough to other MPOs because most airports are owned by the County. In examples where there is an independent authority, they have voting seats. For example, Orlando International Airport has a voting seat on the MetroPlan Board. HCAA representatives speak for the Board, not the CEO. HCAA has a unique perspective as a transportation operator and should retain a voting seat. The Port Authority agreed with HCAA, and finds the proposed plan disturbing.
 - Planning Commission, Hillsborough County, and City of Tampa representatives abstained from voting since their Boards have not taken a position.

The TAC heard status reports and announcements on:

- Transportation Improvement Program (TIP) Priorities Update: Preliminary Draft
- Live. Grow. Thrive. Tampa Comprehensive Plan Update
- HCAA is updating its Master Plan (<https://www.tampaairport.com/tpa-master-plan>)

Meeting of the Citizens Advisory Committee (CAC) of May 4

The CAC approved action items:

- ✓ FY 23 & FY 24 UPWP
- ✓ TPO Apportionment Plan Draft, as recommended by the Policy Committee
- ✓ Public Participation Plan: Measures of Effectiveness Report (2020-2021) – with the caveat that the report needs to acknowledge the challenges over the last 2 years in communicating with the public about the design of the Downtown Interchange.

The CAC heard status reports on:

- TIP Priorities Update: Preliminary Draft
- Live. Grow. Thrive. Tampa Comprehensive Plan Update



Asphalt Art Safety Study

Historical Crash Analysis and
Observational Behavior Assessment at
Asphalt Art Sites

April 2022

**Bloomberg
Philanthropies**

**Sam
Schwartz**

Prepared for:
Bloomberg Philanthropies

Prepared By:
Sam Schwartz

Bloomberg
Philanthropies

Sam
Schwartz



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Executive Summary

Transportation infrastructure is perhaps the most visible aspect of a city's public realm—the sidewalks and roadways we depend on daily are often as recognizable as the buildings, destinations, and people within it. As cities transform to meet evolving needs of the future, there is an increasing opportunity for streets to not only be safe and efficient, but a unique and inspiring part of the urban experience. Among other strategies to achieve that goal, public art projects coupled with improvements to transportation infrastructure, often known as “asphalt art,” offer many benefits. They can create safer, more desirable streets and public spaces. They are typically inexpensive and quickly implementable, while helping cities test long-term roadway redesigns. And they help local governments engage with residents to reshape their communities.

These projects, including intersection murals, crosswalk art, and painted plazas or sidewalk extensions, have existed for years and are growing in popularity in communities across the world. Though asphalt art projects frequently include specific roadway safety improvements, the art itself is often also intended to improve safety by increasing visibility of pedestrian spaces and crosswalks, promoting a more walkable public realm, and encouraging drivers to slow down and be more alert for pedestrians and cyclists, the most vulnerable users of the road.

There has been considerable public feedback, anecdotal evidence, and analyses of individual locations indicating that asphalt art can have these traffic-calming benefits and encourage safer behavior. However, despite broad support from people who use and design streets, art within the public roadway network has faced regulatory hurdles in the United States and elsewhere because of concerns about compliance with current design standards and guidance that governs roadway markings. These concerns have persisted in the absence of much rigorous evaluation or published literature on safety performance of asphalt art projects.

This study was conducted to address the need for impact analysis by comparing crash rates and real-time behavior of pedestrians and motorists at an array of asphalt art sites before and after the projects were installed. There are two main components to the study: first is a Historical Crash Analysis that compares crash data prior to and after the introduction of asphalt art at 17 diverse study sites with at least two years of data. The second is an Observational Behavior Assessment that compares before and after video footage of motorist and pedestrian behavior at five U.S. locations with asphalt art projects installed in 2021 as part of the Bloomberg Philanthropies' Asphalt Art Initiative. **The analysis found significantly improved safety performance across a variety of measures during periods when asphalt art was installed.**

Comparing the average of crash rates for before-after analysis periods, results from the Historical Crash Analysis include:

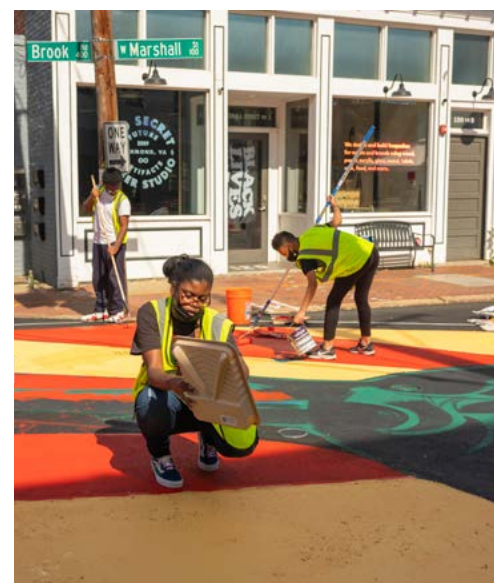
- » 50% decrease in the rate of crashes involving pedestrians or other vulnerable road users
- » 37% decrease in the rate of crashes leading to injuries
- » 17% decrease in the total crash rate

Similarly, the Observational Behavior Assessment indicates:

- » 25% decrease in pedestrian crossings involving a conflict with drivers
- » 27% increase in frequency of drivers immediately yielding to pedestrians with the right of way
- » 38% decrease in pedestrians crossing against the walk signal

The promising findings from this study will inform ongoing discussions on how to revise U.S. roadway engineering guidance to improve safety for the most vulnerable road users. The study also provides data-driven evidence cities can use to make the case for their own arts-driven transportation projects.

The following report details the background, methodology, and results of the Historical Crash Analysis and the Behavioral Observation Assessment.



1. Introduction

There is arguably no more important goal for the transportation profession than ensuring safe travel for everyone on the road, especially pedestrians, cyclists, and other vulnerable road users. In recent years, though, this goal has proven elusive. According to the National Highway Traffic Safety Administration (NHTSA), in 2020, a total of 38,824 people died in motor vehicle crashes in the U.S., the most since 2007 and an increase of 6.8% over 2019.¹ Considering an 11% reduction in vehicle miles traveled (VMT) in 2020 during the pandemic, the fatality rate adjusted for miles traveled increased by 21% and the adjusted pedestrian fatality rate increased by an unprecedented 21%. Clearly, innovative, proven street design tactics need to be more broadly embraced in order to improve safety and mobility on our roadways.

Cities across the globe have been installing asphalt art treatments at intersections and pedestrian crossings for some time now with a goal of improving safety and the quality of life for all roadway users. Such projects have been used in a variety of applications, including within the crosswalk, within the center of an intersection, or in place of or in addition to traditional roadway features such as islands or curb extensions. The art is intended to create a highly visible crossing and suggest a walkable, active, shared use environment. Additionally, art in the crosswalk or at curb extensions makes the pedestrian crossing location more conspicuous to drivers.

However, some in the transportation community find that such projects on portions of roads open to motor vehicles are typically not compliant with official interpretations of the 2009 version of the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), which provides standards and guidance for markings on public roadways in the United States. This interpretation of the standard—which pre-dates the availability of modern colored pavement materials—has limited the number

¹ National Highway Traffic Safety Administration 2020 Annual Crash Data



of communities who can, as a practical matter, use asphalt art in crosswalks and other parts of the street. Recently, such interpretations have been challenged by organizations like the National Association of City Transportation Officials (NACTO) and individual public agencies seeking to improve roadway safety by focusing more on the most vulnerable road users, and less on the rapid movement of motor vehicles on city streets. Both NACTO and the Institute of Traffic Engineers (ITE) have proposed that asphalt art in crosswalks be permitted in the forthcoming revision to the MUTCD; however, the status of asphalt art in the ongoing revisions will likely not be known until 2023.

Given this divide between existing policy and the growing movement of practitioners and community residents who see the potential benefit of asphalt art, some local authorities have been willing to approve asphalt art projects while those in other jurisdictions have been more reluctant to do so. The resulting patchwork approach makes approval processes difficult for community organizations seeking to install asphalt art projects and leads to time-consuming, redundant efforts by local engineers seeking to assess such proposals. This study was designed to address this need and provide a quantitative assessment of multiple asphalt art projects to determine their impact on roadway safety.

1.1 Study Goals and Objectives

The goal of this study is to assess the effectiveness of asphalt art as a safety improvement through quantification and analysis of crash and behavior performance metrics before and after installation at study sites. There are two independent components to the study:

- » **Historical Crash Analysis** – Site characteristics, traffic volumes, and crash data were obtained for 17 asphalt art sites in five states (seven unsignalized intersections, seven signalized intersections and three mid-block crossings). A before-after comparison group study design was used to evaluate the safety effectiveness of the projects.
- » **Observational Behavior Assessment** – Performance metrics were developed for pedestrian and driver behavior and recordings were assessed to identify occurrences of the behavior during before and after comparison periods. This methodology was applied to five asphalt art intersection locations (two signalized and three unsignalized).

The objective of the study is to quantify the change in the following metrics for before and after comparison periods:

- » Crash Rates
 - » Total Crashes
 - » Vulnerable user crashes
 - » Fatal and injury crashes
- » Driver and Pedestrian Behavior Metrics
 - » Pedestrian-Vehicle conflicts with crash potential (near-miss)
 - » Driver yielding/stopping behavior
 - » Compliance with traffic control devices

These components were combined because crash rates should not be used as a lone factor in determining the safety effectiveness of roadway treatments, as crashes often have numerous contributing factors. By also assessing quantifiable behavioral metrics such as rate of pedestrian-vehicle conflicts and rates of drivers yielding to pedestrians, the intention is for the study to provide a more holistic measure of the effectiveness of treatments at installation sites.

1.2 Literature Review

In addition to the analysis itself, a literature review was performed and interviews with transportation officials from over three dozen cities were conducted, inquiring about their experience with asphalt art projects related to safety. Aside from a small number of internal studies generated by municipal staff, the study team found no all-encompassing analysis that created a standardized set of metrics by which to compare safety across different asphalt art improvement types, facility types, settings, and geographic regions, or that considered the long-term safety impacts of asphalt art, further demonstrating the need for the analysis in this document. Findings from the literature review and interviews are summarized in [Appendix A](#).



2. Historical Crash Analysis

2.1. Background and Scope



To quantify the safety performance of a site, road safety practitioners use metrics called crash modification factors (CMF). CMFs are multiplicative factors used to compute the expected number of crashes after implementing a given countermeasure or roadway modification at a specific site. FHWA has developed a living database called the CMF Clearinghouse, which includes a list of recognized CMFs and provides references to studies from which they were developed. CMFs listed in the CMF Clearinghouse are developed as a product of robust published research studies. CMFs included are rated based on the thoroughness of the associated research study, which is predicated on criteria such as study design, sample size, statistical methodology, statistical significance, etc.

While the intent of this historical crash analysis is not to develop a CMF (as it lacks the scale and complexity of FHWA-reviewed research studies), elements of research studies used to develop CMFs were used as a model for this analysis. Similar to FHWA research studies, the goal of this study is to observe and compare long-term crash trends over a range of sites with similar characteristics. In addition to comparing crash quantity/frequency, trends in crash attributes and contributors such as severity, vulnerable user involvement, lighting condition, and crash type were also assessed.

2.2. Crash Data Sources

Many states and cities actively maintain open-source crash databases with historical crash data available at differing levels of granularity and comprehensiveness. While in certain states/jurisdictions, comprehensive data is relatively easy to obtain, others do not allow the public to search for crash data at a single site, only by municipality or neighborhood. Additionally, some public databases only have crash data available for a limited number of years, often excluding the current and most recent complete year (for this study 2020 and 2021) and/or data older than five years.

Further, while a range of roadway data (volume, speed, multimodal, user behavior) is also becoming more widely available and easier to obtain, it is usually not granular enough for quantifying performance at a specific site without dedicated, often costly, monitoring programs.

This lack of comprehensive crash and road user behavior data ultimately impacted both the study site selection and the methodology itself. A list of crash data sources for each study site including years of data obtained is included in the [Appendix B](#).

2.3. Site Selection Criteria

While asphalt art sites are prevalent throughout the country, the study team sought the most rigorous understanding of asphalt art impacts and initially reviewed 150 locations. Of those, 17 sites were selected that met all of the below criteria while offering a diverse array of project types, geographic locations, and neighborhood contexts.

- » Known installation dates and dates of deterioration/repainting within 3 months (confirmed through NearMap or Google Maps historical imagery)
- » Facility type is a marked mid-block crossing, stop-controlled intersection, or signalized intersection within (or formerly within) public ROW and open to vehicle traffic (excludes art in driveways, trails, approaches to controlled access highways, private developments, etc.)
- » State or municipality has publicly available historical crash data through an online resource or open-source data portal
- » Historical crash data available on a location-based scale (i.e., more than just county-wide or municipal-wide data)
- » At least 12 months of pre- and post-implementation (“before” and “after”) crash data available (as many states delay crash data for the current and previous year or only keep recent crash records for the last 5 years, many recently implemented asphalt art sites or those implemented longer than 6 years ago did not have 12 months of data)
- » Robust crash data including (at a minimum) crash date, time of day, severity, vulnerable user involvement, lighting condition, crash type/circumstances



2.4. Summary of Study Sites Selected

The 17 sites selected for this study are included in Table 1 below. Sites from five states were included in high-density urban (central business district, downtown, or mixed-use areas), medium/low density urban (mostly residential), and suburban settings. Sites included mid-block crossings, stop-controlled intersections, and signalized intersections. Tables 2-4 below include a disaggregation of the 17 study sites by state, region, setting, and facility type.

Table 1: Study Site Location Information

#	City	State	Intersection	Site Setting	Facility Type
1	St Petersburg	FL	Central Ave & 5th St	Urban Core	Intersection-Signal
2	Miami	FL	Northeast 98th St & Northeast 2nd Ave	Neighborhood Commercial	Mid-Block
3	Ft Lauderdale	FL	Terramar St & Breakers Ave	Neighborhood Residential	Intersection-Stop
4	Ft Lauderdale	FL	Riomore St & Breakers Ave	Neighborhood Residential	Intersection-Stop
5	Pincrest	FL	Killian Dr & SW 67th Ave	Suburban	Intersection-Signal
6	Pincrest	FL	Killian Dr & SW 62nd Ave	Suburban	Intersection-Stop
7	Atlanta	GA	Piedmont Ave & 10th St	Urban Core	Intersection-Signal
8	Decatur	GA	Ponce de Leon Ave & Fairview Ave	Neighborhood Residential	Intersection-Stop
9	Decatur	GA	Ponce de Leon Ave & Clairmont Ave	Urban Core	Intersection-Signal
10	Decatur	GA	Ponce de Leon Ave & E Court Square	Urban Core	Mid-Block
11	Cambridge	MA	Massachusetts Avenue & Inman Street	Urban Core	Intersection-Signal
12	Rahway	NJ	E Cherry St & Irving St	Neighborhood Residential	Intersection-Stop
13	Maplewood	NJ	Valley St & Oakview Ave	Suburban	Intersection-Signal
14	NYC (Brooklyn)	NY	Hooper St & Division Ave	Urban Core	Intersection-Stop
15	NYC (Manhattan)	NY	7th Ave & Christopher St	Urban Core	Intersection-Signal
16	Tampa	FL	N River Blvd & W Louisiana Ave	Suburban	Intersection-Stop
17	New Brunswick	NJ	Livingston Ave	Urban Core	Mid-Block

Table 2: Study Sites by Region

Region	#	%
Northeast	6	35%
Southeast	11	65%
TOTAL	17	100%

Table 3: Study Sites by Setting

Setting	#	%
Urban Core	8	47%
Neighborhood Residential/Commercial	5	29%
Suburban	4	24%
TOTAL	17	100%

Table 4: Study Sites by Facility Type

Facility Type	#	%
Intersection (Signal Controlled)	7	41%
Intersection (Stop Controlled)	7	41%
Mid-Block	3	18%
TOTAL	17	100%

2.5. Improvements at Study Sites

Asphalt art sites included in the study were classified based on type of improvement. Improvements related directly to installation of art include crosswalk art, intersection art serving a functional traffic control/calming purpose and meeting the definition of a traffic control device or traffic calming treatment device (e.g., curb extension, painted chicane, incorporation of traffic control elements), and roadway art serving only as an aesthetic improvement and not meeting the definition of a traffic control device (e.g., within the center of an intersection or along an approach). At some sites, in addition to asphalt art, other roadway/roadside improvements were implemented at the same time (e.g., raised crosswalks, pedestrian signal improvements, traffic control device modifications). Table 5 provides a matrix of improvements at each study site. Pre- and post-implementation aerial photos and links to locations in Google Maps are provided in Appendix C.



Table 5: Site Locations by Improvement Type

#	City	State	Crosswalk Art	Roadway Art (Center of intersection or intersection approach)	Other Improvements/Notes
1	St Petersburg	FL		✓	
2	Miami	FL		✓	
3	Ft Lauderdale	FL	✓	✓	Sidewalk improvements
4	Ft Lauderdale	FL	✓	✓	Sidewalk improvements
5	Pinecrest	FL		✓	
6	Pinecrest	FL		✓	
7	Atlanta	GA	✓		Rapid development, nearby bike network expansion, bike & pedestrian volume growth
8	Decatur	GA	✓		Raised crosswalks
9	Decatur	GA	✓		Bollards/sidewalk improvements
10	Decatur	GA	✓		Raised crosswalks
11	Cambridge	MA	✓		
12	Rahway	NJ	✓		
13	Maplewood	NJ	✓		
14	NYC (Brooklyn)	NY		✓	Restricted turning movement, intersection leg closure
15	NYC (Manhattan)	NY	✓		
16	Tampa	FL		✓	
17	New Brunswick	NJ	✓		Art within marked parking spaces
COMBINED SITES		#	11	8	8
		%	65%	47%	29%

2.6. Historical Crash Data Analysis Methodology

Historical crash data was obtained from state and municipal transportation agencies for each of the 17 study sites. As mentioned above, sites were selected based on a set of criteria identified to support a sound analysis methodology. In many jurisdictions, there are limitations on data available through open-source data portals. This required extracting data for thousands of crashes, and then manually parsing data to obtain the desired datasets at individual locations.

NearMap, an online resource for regularly updated historical aerial imagery, was used to obtain art installation dates as interviews with each municipality were not conducted. Using this imagery, the last confirmed date of the condition prior to asphalt art implementation, date of art installation, and dates of deterioration/repainting/removal were obtained. Months between the confirmed prior condition and implementation and months after art had deteriorated beyond recognition were excluded from both analysis periods. At some locations, the exact date(s) of installation are known and were used when available.

To account for differences in sites with different analysis periods, crash rates (crashes/year) were used as a metric instead of raw number of crashes. The average pre-implementation/before period for all sites was 48.2 months while the post-implementation/after period averaged 32.9 months. Analysis periods for each site are presented in [Table 6](#) on page 21.

The combined pre- and post-implementation analysis periods for the 17 study sites included a total of 390 reported crash records. Crash records were first reviewed and analyzed for all 17 sites combined in the following categories: total reported crashes, crashes involving vulnerable users (e.g., bicyclists, pedestrians, scooter users), crashes resulting in an injury, crash type, contributing circumstance, and time of day/lighting condition. Contributing circumstances and crash types were not available for every site and breakdown of crash types were summarized for combined sites with that information available. Lighting condition data was incomplete for many states and varied widely from state to state, resulting in inclusive data that was not included in the analysis.



Table 6: Analysis Periods

#	City	State	Pre-Implementation "Before" (Months)	Post-Implementation "After" (Months)	Implementation Year
1	St Petersburg	FL	52	39	2016
2	Miami	FL	54	25	2017
3	Ft Lauderdale	FL	49	42	2016
4	Ft Lauderdale	FL	49	42	2016
5	Pinecrest	FL	59	14	2018
6	Pinecrest	FL	59	14	2018
7	Atlanta	GA	54	42	2017
8	Decatur	GA	47	46	2016
9	Decatur	GA	48	47	2017
10	Decatur	GA	48	47	2017
11	Cambridge	MA	60	28	2016
12	Rahway	NJ	39	18	2019
13	Maplewood	NJ	40	31	2018
14	NYC (Brooklyn)	NY	30	35	2018
15	NYC (Manhattan)	NY	16	42	2017
16	Tampa	FL	60	32	2017
17	New Brunswick	NJ	57	16	2019
AVERAGE			48.3	32.9	-

Crash rate metrics for combined study sites were calculated using two separate methods. The average of crash rates is the average of the individual crash rate values of each site within an analysis period and is calculated by dividing the sum of crash rates for each site by the quantity of sites. The average rate is the aggregated crash rate of all sites/analysis periods and is calculated by dividing the total number crashes that occurred divided by the total amount of time analyzed. It should be noted that several after periods overlapped with periods of reduced volumes due to the COVID-19 pandemic.



2.7. Historical Crash Analysis Results

Comparisons of crash types are presented in the following tables and further detailed by site in [Appendix D](#). The percent differences between analysis periods were calculated as the difference in crash rates of the after and before period divided by the crash rate of the before period. Positive values for percent difference between the crash rates in the before and after condition indicate a reduction in the crash rate, while negative values indicate an increase.

Study Sites - Combined

Results indicate that, at the 17 study sites, the average of crash rates was 17.3% lower in the analysis periods after art installation than the average of crash rates for the before analysis periods. Similarly, the average of vulnerable user and injury crash rates were 49.6% and 36.5% lower in analysis periods after art was installed.

It should be noted that sites with a comparatively large number of crashes in both the before and after analysis periods heavily influenced averages of crash rates. As such, the average of crash rates was calculated for the entire 17 site sample and separately, excluding the sites with the highest and lowest number of total crashes statistical outliers. For this study, Site 7 (Atlanta, GA) experienced the highest number of crashes (70 and 77 crashes in before and after periods respectively) and both Site 16 (Tampa, FL) and Site 17 (New Brunswick, NJ) had no crash occurrences either analysis period. For purposes of performing calculations excluding statistical outliers, Site 17 was excluded as opposed to Site 16 because the before and after analysis periods were longer.

The following points summarize key findings from an analysis of crashes of all types (total crashes), crashes involving vulnerable users, and crashes involving an injury, holistically for all 17 study sites combined. Reported crashes, analysis periods intervals, and crash rates for before and after periods are presented by site and as an average in [Tables 7–9](#) below. [Table 10](#) presents the average (aggregate) crash rate of crashes and analysis periods of the 17 study sites combined.



Table 7: Total Crash Rate by Site and Average of Rates (Crashes/Year)

#	City	State	Analysis Period (Months)		Total Crash Quantity		Total Crash Rate (Crashes/Year)		
			Before	After	Before	After	Before	After	Difference
1	St Petersburg	FL	52	39	18	13	4.2	4.0	-4%
2	Miami	FL	54	25	3	0	0.7	0.0	-100%
3	Ft Lauderdale	FL	49	42	2	1	0.5	0.3	-42%
4	Ft Lauderdale	FL	49	42	4	3	1.0	0.9	-13%
5	Pinecrest	FL	59	14	28	1	5.7	0.9	-85%
6	Pinecrest	FL	59	14	3	0	0.6	0.0	-100%
7	Atlanta	GA	54	42	70	77	15.6	22.0	+41%
8	Decatur	GA	47	46	11	4	2.8	1.0	-63%
9	Decatur	GA	48	47	12	15	3.0	3.8	+28%
10	Decatur	GA	48	47	11	8	2.8	2.0	-26%
11	Cambridge	MA	60	28	31	7	6.2	3.0	-52%
12	Rahway	NJ	39	18	6	2	1.8	1.3	-28%
13	Maplewood	NJ	40	31	17	9	5.1	3.5	-32%
14	NYC (Brooklyn)	NY	30	35	12	12	4.8	4.1	-14%
15	NYC (Manhattan)	NY	16	42	5	5	3.8	1.4	-62%
16	Tampa	FL	60	32	0	0	0.0	0.0	0%
17	New Brunswick	NJ	57	16	0	0	0.0	0.0	0%
AVERAGE SITE			48.3	32.9	13.7	9.2			
AVERAGE OF TOTAL CRASH RATES (ALL SITES)							3.44	2.84	-17.3%
AVERAGE OF TOTAL CRASH RATES (EXCLUDING HIGH AND LOW SITES)							2.86	1.75	-38.7%

Table 8: Vulnerable User Crash Rate by Site and Average of Rates (Crashes/Year)

#	City	State	Analysis Period (Months)		Vulnerable User Crash Quantity		Vulnerable User Crash Rate (Crashes/Year)		
			Before	After	Before	After	Before	After	Difference
1	St Petersburg	FL	52	39	1	0	0.00	0.00	-100%
2	Miami	FL	54	25	0	0	0.00	0.00	0%
3	Ft Lauderdale	FL	49	42	0	0	0.00	0.00	0%
4	Ft Lauderdale	FL	49	42	0	0	0.00	0.00	0%
5	Pinecrest	FL	59	14	0	0	0.00	0.00	0%
6	Pinecrest	FL	59	14	0	0	0.00	0.00	0%
7	Atlanta	GA	54	42	4	3	0.89	0.86	-4%
8	Decatur	GA	47	46	0	0	0.00	0.00	0%
9	Decatur	GA	48	47	0	0	0.00	0.00	0%
10	Decatur	GA	48	47	0	0	0.00	0.00	0%
11	Cambridge	MA	60	28	1	0	0.20	0.00	-100%
12	Rahway	NJ	39	18	0	1	0.00	0.67	0%
13	Maplewood	NJ	40	31	0	1	0.00	0.39	0%
14	NYC (Brooklyn)	NY	30	35	6	1	2.40	0.34	-86%
15	NYC (Manhattan)	NY	16	42	1	0	0.75	0.00	-100%
16	Tampa	FL	60	32	0	0	0.00	0.00	0%
17	New Brunswick	NJ	57	16	0	0	0.00	0.00	0%
AVERAGE SITE			48.3	32.9	13.7	9.2			
AVERAGE OF VULNERABLE USER CRASH RATES (ALL SITES)							0.26	0.13	-49.6%
AVERAGE OF VULNERABLE USER CRASH RATE (EXCLUDING HIGH AND LOW SITES)							0.24	0.09	-61.0%

Table 9: Injury Crash Rate by Site and Average of Rates (Crashes/Year)

#	City	State	Analysis Period (Months)		Injury Crash Quantity		Injury Crash Rate (Crashes/Year)		
			Before	After	Before	After	Before	After	Difference
1	St Petersburg	FL	52	39	5	0	1.15	0.00	-100%
2	Miami	FL	54	25	1	0	0.22	0.00	-100%
3	Ft Lauderdale	FL	49	42	0	0	0.00	0.00	0%
4	Ft Lauderdale	FL	49	42	6	0	1.47	0.00	-100%
5	Pinecrest	FL	59	14	3	1	0.61	0.86	+40%
6	Pinecrest	FL	59	14	0	0	0.00	0.00	0%
7	Atlanta	GA	54	42	14	9	3.11	2.57	-17%
8	Decatur	GA	47	46	4	2	1.02	0.52	-49%
9	Decatur	GA	48	47	1	4	0.25	1.02	+309%
10	Decatur	GA	48	47	1	1	0.25	0.26	+2%
11	Cambridge	MA	60	28	14	0	2.80	0.00	-100%
12	Rahway	NJ	39	18	0	1	0.00	0.67	0%
13	Maplewood	NJ	40	31	6	5	1.80	1.94	+8%
14	NYC (Brooklyn)	NY	30	35	4	5	1.60	1.71	+7%
15	NYC (Manhattan)	NY	16	42	1	0	0.75	0.00	-100%
16	Tampa	FL	60	32	0	0	0.00	0.00	0%
17	New Brunswick	NJ	57	16	0	0	0.00	0.00	0%
AVERAGE SITE			48.3	32.9	13.7	9.2			
AVERAGE OF INJURY CRASH RATES (ALL SITES)							0.88	0.56	-36.5%
AVERAGE OF INJURY CRASH RATE (EXCLUDING HIGH AND LOW SITES)							0.80	0.46	-41.5%

Table 10: Average (Aggregate) Crash Rate (Crashes/Year)

Sites	Crash Type	Analysis Period (Months)		Quantity		Crash Rate (Crashes/Year)		
		Before	After	Before	After	Before	After	Difference
Average Crash Rate (All Sites Aggregated)	Total	821	560	233	157	3.41	3.36	-1.2%
	Vulnerable Users	821	560	13	6	0.7	0.0	-32.3%
	Injury	821	560	60	28	0.5	0.3	-31.6%
Average Crash Rate (Aggregated, Excluding High and Low sites)	Total	710	502	163	80	2.75	1.91	-30.6%
	Vulnerable Users	710	502	9	3	0.15	0.07	-52.9%
	Injury	710	502	46	19	0.78	0.45	-41.6%

- » Using the average of rates method, between the before and after analysis periods, the average of total, vulnerable user, and injury crash rates decreased by 17.3%, 49.6%, 36.5%, respectively. Excluding the statistical outliers (Sites 7 and 17), the average of total, vulnerable user, and injury crash rates decreased by 38.7%, 61.0%, 41.5%, respectively.
- » Using the average (aggregate) rate method, between the before and after analysis periods, the average (aggregate) total, vulnerable user, and injury crash rates decreased by 1.2%, 32.3%, and 31.6%, respectively. Excluding the statistical outliers (Sites 7 and 17), the average (aggregate) total, vulnerable user, and injury crash rates decreased by 30.6%, 52.9%, and 41.6%, respectively.
- » Change in crash rates at sites ranged from a decrease of 100% (two FL locations) to an increase of 41% (Atlanta, GA).
- » 13 (76%) sites had a decreased total crash rate, 2 (12%) had an increased total crash rate, 2 (12%) had no crashes in either period.
- » No crashes resulted in a fatality during before or after analysis periods at each of the 17 study sites.
- » No crashes were reported during one or both analysis periods at 4 (24%) sites and both analysis periods at 2 (12%) sites.
- » No vulnerable user crashes were reported during one or both analysis periods at 15 (88%) sites and both analysis period at 10 (59%) sites.
- » No injury crashes were reported during one or both analysis periods at 10 (59%) sites and both analysis period at 4 (24%) sites.
- » Crashes at one site (Atlanta, GA) accounted for 38% of total crashes (30% in the before period, 49% in the after period).





Study Sites – Disaggregated by Site Characteristics

A disaggregate analysis was completed to determine if certain types of asphalt art may be more effective or if art may be more effective under specific conditions. [Tables 11-14](#) below summarize trends for total, vulnerable user, and injury crash rates for study sites broken down by geographic region and site setting.

2.8. Discussion of Historical Crash Analysis Results

On the basis of a before-after historical crash analysis of 17 asphalt art study sites, implementation of asphalt art appears to have a positive impact on the rate of crashes of all types. The average of total, vulnerable user, and injury crash rates for the combined study sites were reduced by 17%, 50%, and 37% respectively after installation of asphalt art. While the average (aggregate) rate also decreased in the after period. The trend between presence of asphalt art and reduced crash rates was consistent across sites with a variety of roadway settings, traffic control types, and art improvement type. The results are likely due to the improved conspicuity of the intersection and roadway user movements. It should be noted that at several locations, after analysis periods overlapped with the COVID-19 pandemic, when injury crash rates were elevated nationwide.

The total crash rate decreased or remained at 0 in the after analysis period compared to the before period at all sites, except Piedmont Avenue & 10th Street in Atlanta, GA (+41%) and Ponce de Leon Avenue & Clairemont Avenue in Decatur, GA (+28%) (both signalized intersections). The Piedmont Avenue & 10th Street site is located in the rapidly growing Midtown area of Atlanta and accounted for 38% of the total crashes occurring at all sites. Despite increased total crash rate after art was installed, the intersection experienced a 17% decrease in the injury crash rate (crashes/year) and a 4% decrease in vulnerable user crash rate—two important and widely utilized performance indicators. The project could be considered successful on the basis of this decrease in the injury crash rate and vulnerable user crash rate (which typically result in an injury, if reported).

Additionally, according to the City of Atlanta, rapid redevelopment of immediate area surrounding the intersection near the time of the art installation, resulted in a nearly three-fold increase in bike activity (without bike improvements at the intersection itself), an 18% increase in motor vehicle volumes on Piedmont Street, and a

Table 11: Average (Aggregated) Total, Vulnerable User, and Injury Crash Rates by Geographic Region

Region	#	Total Crash Rate (Crashes/Year)			Vulnerable User Crash Rate (Crashes/Year)			Injury Crash Rate (Crashes/Year)		
		Before	After	Difference	Before	After	Difference	Before	After	Difference
Northeast	6	3.52	2.47	-30%	0.40	0.21	-47%	1.24	0.78	-37%
Southeast	11	3.36	3.75	+12%	0.10	0.09	-11%	0.73	0.52	-28%
Total	17	3.41	3.36	-1.2%	0.19	0.13	-32.3%	0.88	0.60	-31.6%

Table 12: Average (Aggregated) Total, Vulnerable User, and Injury Crash Rates by Site Setting

Setting	#	Total Crash Rate (Crashes/Year)			Vulnerable User Crash Rate (Crashes/Year)			Injury Crash Rate (Crashes/Year)		
		Before	After	Difference	Before	After	Difference	Before	After	Difference
Urban Core	7	2.30	1.01	-56%	0.04	0.06	+48%	1.01	0.18	-82%
Urban Residential	6	5.04	5.82	+16%	0.47	0.18	-62%	1.02	0.85	-17%
Suburban	4	2.64	1.32	-50%	0.00	0.13	IND	0.50	0.79	+60%
TOTAL	17	3.41	3.36	-1.2%	0.19	0.13	-32.3%	0.88	0.60	-31.6%

Table 13: Average (Aggregated) Total, Vulnerable User, and Injury Crash Rates by Site Facility Type

Traffic Control	#	Total Crash Rate (Crashes/Year)			Vulnerable User Crash Rate (Crashes/Year)			Injury Crash Rate (Crashes/Year)		
		Before	After	Difference	Before	After	Difference	Before	After	Difference
Intersection - Signal Controlled	7	6.60	6.27	-5%	0.26	0.20	-23%	1.60	0.94	-42%
Intersection - Stop Controlled	7	1.37	1.15	-16%	0.22	0.10	-52%	0.50	0.42	-17%
Mid-Block	3	1.06	1.09	+3%	0.00	0.00	-	0.15	0.14	-10%
TOTAL	17	3.41	3.36	-1.2%	0.19	0.13	-32.3%	0.88	0.60	-31.6%

Table 14: Average (Aggregated) Total, Vulnerable User, and Injury Crash Rates by Site Improvement Type

Improvement	#	Total Crash Rate (Crashes/Year)			Vulnerable User Crash Rate (Crashes/Year)			Injury Crash Rate (Crashes/Year)		
		Before	After	Difference	Before	After	Difference	Before	After	Difference
Roadway Art Sites (Excl. Sites with Crosswalk Art)	6	2.45	1.96	-20%	0.27	0.08	-72%	0.50	0.45	-9%
Roadway Art + Crosswalk Art Sites	2	0.73	0.57	-22%	2.08	1.29	-38%	0.73	0.00	-100%
Crosswalk Art Sites (Excl. Sites with Roadway Art)	9	4.78	4.81	+1%	0.18	0.19	+8%	1.20	0.83	-31%
Combined (Average Rate)	17	3.41	3.36	-1.2%	0.19	0.13	-32.3%	0.88	0.60	-31.6%



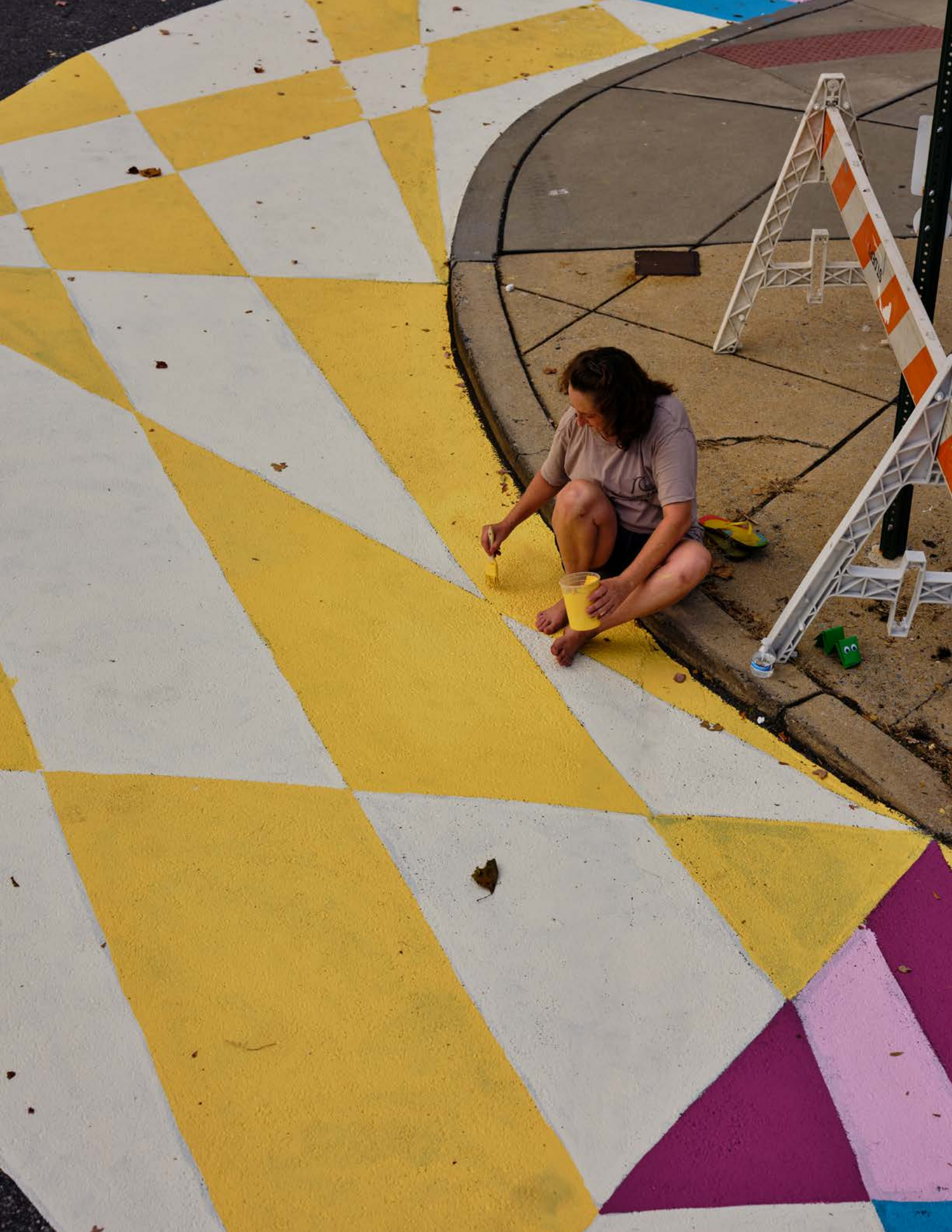
likely a significant increase in pedestrian volumes. It is reasonable to expect an increase in total crash and vulnerable user rate when volumes increase significantly and is encouraging that the injury crash rate decreased despite this.

Although crash rates for specific crash types (vulnerable user and injury crashes) did increase for certain crash types in the after periods, sample sizes were often very small (most locations had 0 or 1 crash in before-after periods averaging over 3 years). As crashes are for the most part rare and random events with several contributing circumstances, when crash sample sizes are small, crash reductions at most individual locations are not statistically significant when evaluated individually.

The disaggregate analysis indicated mixed results for each crash type investigated when considering sites by setting. Increases in pedestrian crashes in urban locations may be due to an increased rate of pedestrians, cyclists, and even motor vehicle traffic generated by improving the location with asphalt art and other developments. Crash rates decreased for signalized and unsignalized intersections and experienced an insignificant increase at mid-block crossing locations between the before and after analysis periods. Notably, the average crash rate decreased at signalized intersections despite the significant number of crashes at the Atlanta site.

The negligible increases in overall and vulnerable user crash rates at improvement sites with crosswalk art alone may also be due to an increased rate of pedestrians, cyclists, and even motor vehicle traffic generated by site and nearby improvements. Despite a slight increase in overall (+1%) and vulnerable user (+8%) crashes at crosswalk art sites, injury crashes were reduced by 31%.

Disaggregate analyses in the present study are based on a very limited sample sizes using basic crash analysis techniques. As such, while we cannot infer direct causation, results generally indicated reduced crash rates after installation of art for most crash types across a range of settings, traffic control, and improvement types. As more post-implementation crash data becomes available for asphalt art sites, further study and analysis using larger sample sizes would provide more insight into effectiveness of different types of art improvements in different roadway contexts.



3. Behavioral Observational Assessment



3.1. Background and Scope

While historical crash data provides insight into the safety performance of a subject site, it is important to keep in mind that crashes are rare occurrences and almost always have multiple contributing factors. The sample size of pedestrian crashes at most locations is too small to be of statistical significance at most locations individually. This is indicated in the above historical crash data, in that most sites have few to zero pedestrian crashes over both analysis periods. In instances where pedestrian crashes occur infrequently, other factors such as near-miss conflicts between pedestrians and vehicles, observed road user behavior, and compliance with traffic control devices can provide insight on the safety impacts as a result of roadway treatments such as asphalt art.

To study the impact of asphalt art on driver and pedestrian behavior, five intersection sites with art projects in Bloomberg Philanthropies' Asphalt Art Initiative were selected with scheduled implementation dates for summer-fall 2021. Video was recorded of the intersection capturing vehicle and pedestrian behavior for a period prior to and following installation. Using this video, visual observations were performed to assess pedestrian and motorist behavior during each observation period. The observation assessment methodology, information about sites selected, and findings are presented in the sections below.

3.2. Methodology

Video recordings of each intersection location were collected for 48-hour periods during the same days of the week (when possible) to capture approaching vehicles and crossing movements at each leg of the intersection. Video was first reviewed at a high level to determine appropriate 8-hour analysis periods before and after the installation of the art/improvements. In some cases, this 8-hour period was broken into multiple segments to capture peak hour pedestrian volumes.



The video recordings were reviewed during the before and after analysis periods to conduct conflict analyses and record other observable behavior metrics. Pedestrian group crossings (as opposed to individual pedestrians, which were also recorded) were utilized for purposes of analysis. This metric is typical for pedestrian crossing studies as pedestrians waiting at an intersection typically arrive or cross in groups. As an example, if a child and parent arrived at an intersection together and crossed the roadway together, they would be counted as a single crossing, while if there were two individuals waiting at an intersection and one crossed during a “flashing don’t walk phase” while the other pedestrian decided to wait until the next interval, they would be counted as separate crossings.

As the observational study sites consisted of both signalized and unsignalized intersections, different metrics were captured based on different types of traffic control. The following details road-user behavior metrics assessed as part of this study.

3.2.1. Metrics at All Observation Sites

Pedestrian-Vehicle Conflicts

To compare road user behavior in the before and after conditions at signalized and unsignalized intersection locations, a conflict analysis was conducted using video data collected at each location. Conflict analysis involves observing and recording conflicts between pedestrians and drivers/vehicle. A conflict is defined as an observable situation in which two or more road users approach each other in space and time to such an extent that there is a risk of collision if their movements remain unchanged, and at least one of the road users then takes action to avoid a crash. Such an action could be as simple as a routine application of the brakes to give way to a crossing pedestrian.

Pedestrian-vehicle conflicts range in severity by how likely they are to result in a crash. This analysis considered conflicts of two levels:

- » **Low Crash Potential** – A motorist noticeably brakes to avoid striking a pedestrian or group; a pedestrian or group of pedestrians stops to avoid being in the path of an oncoming or turning vehicle, although the vehicle has appropriately yielded. Neither actions are sudden, atypical, or extreme. Vehicles passing their appropriate stop bar, or negotiation of space between pedestrian and vehicle in the crosswalk may suggest a Low Crash Potential conflict.
- » **High Crash Potential** – A motorist noticeably and clearly suddenly stops or swerves to avoid striking a pedestrian or group of pedestrians in a fashion that suggests reduced control of the vehicle; a pedestrian or group of pedestrians jumps, runs, stops, or suddenly steps or lunges to avoid being struck by a vehicle.

An example of a Low Crash Potential conflict is when a vehicle turning towards a pedestrian in the crosswalk noticeably brakes to avoid conflicting with the pedestrian. This behavior is normal and as expected, as pedestrians are crossing with the signal and the car properly yields to them; however, this is still considered to be a conflict because, if the vehicle had not yielded quickly, the vehicle would have to suddenly break or swerve (indicating a High Crash Potential conflict) to avoid potential collision. A turning vehicle yielding the right of way to crossing pedestrians is also the most common type of Low Crash Potential conflict encountered. The goal of this conflict analysis is to identify observed differences in driver and pedestrian behavior and occurrences of crash-risk conflicts before and after art implementation.

To consider the rate of Low and High Crash Potential conflicts, the video recorded was also reviewed to quantify pedestrian activity. The following metrics pertaining to pedestrian activity were quantified:

- » **Pedestrian Crossing Groups** – A pedestrian, or a group of pedestrians, that both approach the crosswalk and cross at the intersection simultaneously.
- » **Pedestrians per Crossing Group** - The number of people present per pedestrian crossing as defined above.
- » **Origin/Destination of Crossing Groups** – The origin and destination crosswalk for each group of pedestrian crossings.

Pedestrian Actions

An analysis was conducted of undesired pedestrian actions at intersections in before and after conditions using collected video data. Undesired pedestrian actions were recorded as follows:

- » Pedestrian crossing against signal - When a pedestrian crosses the intersection while the movement is prohibited by the pedestrian signal and begins their movement while a solid “Don’t Walk” symbol is displayed.
- » Pedestrian crossing outside of crosswalk - When a pedestrian crosses mid-block, at an intersection approach outside the vicinity of the crosswalk or crosses the intersection at a diagonal.



3.2.2. Metrics at Unsignalized Observation Sites

Vehicle Yield/Stop Compliance

The goal of this yield compliance analysis is to identify observed differences in driver behavior with respect to compliance with yielding or stopping for pedestrians crossing or waiting to cross before and after art implementation, as well as noted behavior of pedestrians in the before and after observation periods.

Pedestrians have the right of way at unsignalized intersections, regardless of the presence or absence of a marked crosswalk, but people often have to wait for drivers to yield or stop for them before they start crossing. Particularly on higher-speed or higher-volume streets, drivers often fail to yield to pedestrians who are waiting to cross, and sometimes even fail to yield to people already in the crosswalk. In addition to injury risks, pedestrians face extended delays in crossing when drivers do not properly yield or stop for them.

As such, at unsignalized locations, the recorded videos were reviewed to analyze yielding behavior of drivers for crossing pedestrians along with other indicators of the traffic environment. The below metrics were recorded. It should be noted that only crossings with vehicles present at the intersection were analyzed, excluding crossings where pedestrians crossed with an adequate gap, unconflicted.

- » **Vehicle Presence** - Whether there one or more vehicles approaching the observed crossing at the intersection at the time of the pedestrian crossing.
- » **Non-Yielding Drivers/Vehicles** - The number of drivers who failed to yield to a pedestrian initiating crossing or in the crosswalk. This excludes any driver yielding to pedestrians even if suddenly braking in a manner that would constitute a potential crash conflict as defined in the section above.
- » **Eventual Yield** - Whether or not the first or subsequent drivers, if present, eventually yielded to crossing pedestrians or pedestrians. If no vehicles yielded, pedestrians crossing during an adequate gap were noted as crossing with no eventual yield.



3.3. Observation Sites and Analysis Periods

A total of five sites were selected for observations analysis with asphalt art projects scheduled for installation in summer and fall 2021. Table 15 below provides a summary of each site, setting, intersection type, roadway/roadside improvement(s). Before and after street level and aerial photography is provided for each location in the Appendix. Table 16 provides a summary of locations by date of art installation and observation analysis periods. Before and after photos of each observation site are shown in Figures 2–6, illustrating the improvements made at each site.

Table 15: Summary of Observational Assessment Sites

#	City	State	Intersection	Traffic Control	Setting	Summary
1	Trenton	NJ	South Clinton Ave & Barlow St/ R Wallenberg Ave	Signal	Urban Core	Painted crosswalks
2	Richmond	VA	W Marshall St & Brook Rd	Signal	Urban Core	Curb extensions, bollards, painted intersection
3	Durham	NC	Club Blvd & Glendale Ave	Signal	Suburban	Painted crosswalks, painted intersection
4	Pittsburgh	PA	Roup Ave, S Fairmount St & Harriet St	Stop	Neighborhood Residential	Curb extensions, additional/revised marked crosswalks
5	Lancaster	PA	Strawberry St & Vine St	Stop	Urban Core	Curb extensions, bollards

Table 16: Summary of Analysis Periods

#	City	State	Intersection	Installation Date(s)	Before Observation Date	After Observation Date	Observation Period Times
1	Trenton	NJ	South Clinton Ave & Barlow St/ R Wallenberg Ave	9/4/21 - 9/5/21	8/24/2021	9/21/2021	7 AM–11 AM, 3 PM–7 PM
2	Richmond	VA	W Marshall St & Brook Rd	10/24/21 - 10/26/21	9/23/2021	11/16/2021	11 AM–7 PM
3	Durham	NC	Club Blvd & Glendale Ave	5/21/21- 5/24/21	5/15/2021	7/3/2021	10 AM–6 PM
4	Pittsburgh	PA	Roup Ave, S Fairmount St & Harriet St	9/23/21 - 9/24/21	9/9/2021	10/21/2021	8 AM–12 PM, 3:30 PM–7:30 PM
5	Lancaster	PA	Strawberry St & Vine St	9/11/21- 9/12/21	9/9/2021	10/24/2021	8 AM–12 PM, 3:30 PM–7:30 PM

Trenton, NJ

Figure 2: Trenton, NJ - Before



Figure 3: Trenton, NJ - After



Richmond, VA

Figure 6: Richmond, VA - Before



Figure 7: Richmond, VA - After



Durham, NC

Figure 8: Durham, NC - Before



Figure 9: Durham, NC - After



Pittsburgh, PA

Figure 10: Pittsburgh, PA - Before



Figure 11: Pittsburgh, PA - After



Lancaster, PA

Figure 12: Lancaster, PA - Before

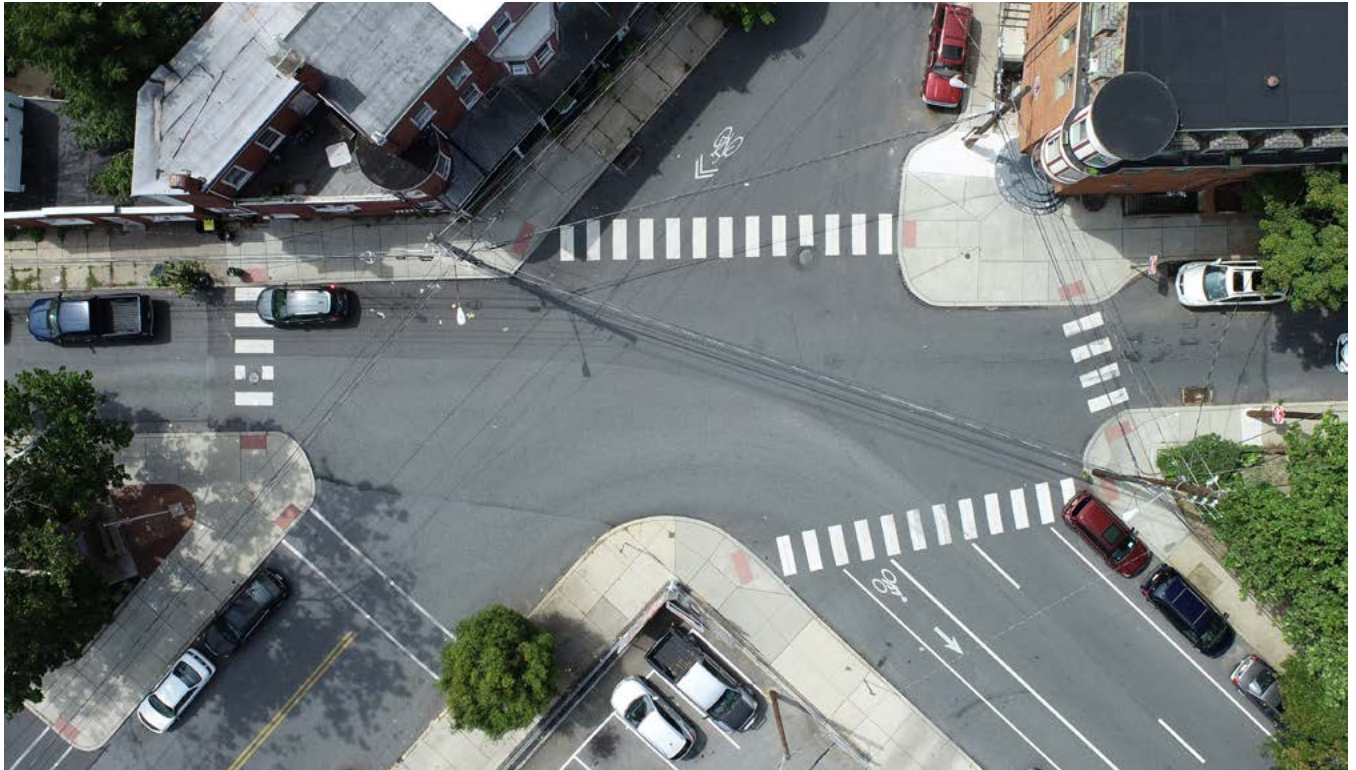
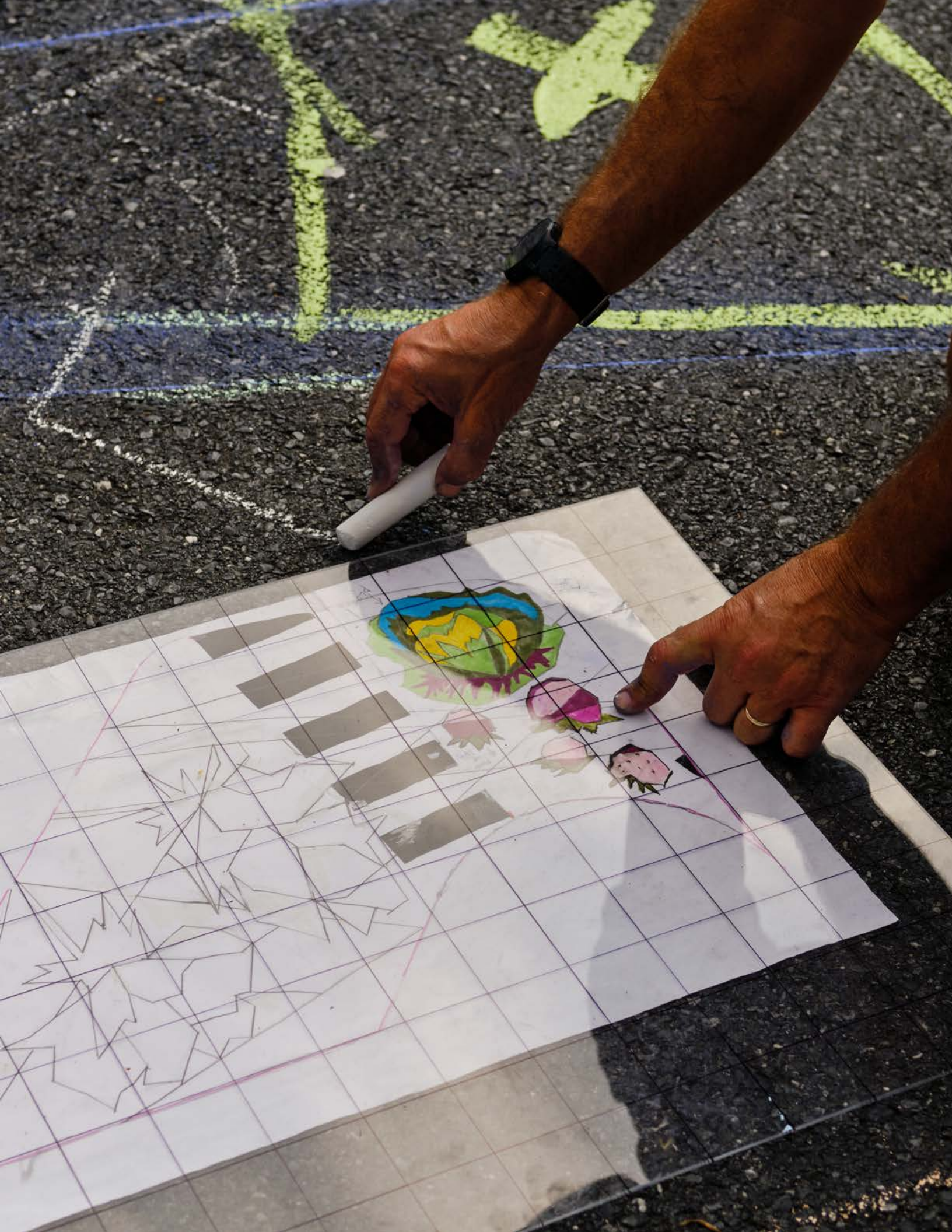


Figure 13: Lancaster, PA - After





3.4. Behavioral Assessment Results

3.4.1. Vehicle-Pedestrian Conflict Assessment

At both signalized locations, the total conflict rate and rate of low crash potential conflicts decreased after the installation of asphalt art. [Tables 17](#) summarizes the results of the vehicle-pedestrian conflict assessments for each site, signalized observation sites aggregated, unsignalized observation sites aggregated, and all observation sites aggregated. The high crash potential conflict rate increased at the Trenton location negligibly (an absolute difference of 0.1% in the rate). The average (aggregated) low and high crash potential conflict rates decreased when considering observed crossing movements at combined signalized study sites.

At the Durham unsignalized site, the rate of both high and low crash potential conflicts decreased. The low crash potential conflict rate decreased by 61% (an absolute difference of six fewer occurrences) at the Pittsburgh site and increased by 23% (an absolute difference of two additional occurrences) at the Lancaster site. No high crash potential conflicts occurred during the before or after observation periods at the Pittsburgh and Lancaster sites. The average (aggregated) low and high crash potential conflict rates decreased when considering observed crossing movements at unsignalized study sites.

When considering all observed movements at observation sites aggregated, the rate of crossings involving a low and high crash potential conflict decreased by 27% and 18%, respectively, an overall decrease of 25%.



Table 17: Pedestrian-Vehicle Conflict Assessment Results

	Pedestrian Crossing Behavior/Action	Before		After		Conflict Rate Reduction (%)
		Crossings (#)	Crossings (%)	Crossings (#)	Crossings (%)	
Trenton, NJ	Total Pedestrian Crossings	1,035	-	1,050	-	-
	Crossings Involving a Conflict	68	6.6%	59	5.6%	-14.5%
	High Crash Potential Conflicts	13	1.3%	15	1.4%	+13.7%
	Low Crash Potential Conflicts	55	5.3%	44	4.2%	-21.1%
Richmond, VA	Total Pedestrian Crossings	325	-	319	-	-
	Crossings Involving a Conflict	14	4.3%	6	1.9%	-56.3%
	High Crash Potential Conflicts	5	1.5%	1	0.3%	-79.6%
	Low Crash Potential Conflicts	9	2.8%	5	1.6%	-43.4%
Aggregated for Signalized Sites Combined	Total Pedestrian Crossings	1,360	-	1,369	-	-
	Crossings Involving a Conflict	82	6.0%	65	4.7%	-21.3%
	High Crash Potential Conflicts	18	1.3%	16	1.2%	-11.7%
	Low Crash Potential Conflicts	64	4.7%	49	3.6%	-23.9%
Durham, NC	Total Pedestrian Crossings	301	-	215	-	-
	Crossings Involving a Conflict	6	2.0%	3	1.4%	-30.0%
	High Crash Potential Conflicts	1	0.3%	0	0.0%	-100.0%
	Low Crash Potential Conflicts	5	1.7%	3	1.4%	-16.0%
Pittsburgh, PA	Total Pedestrian Crossings	287	-	372	-	-
	Crossings Involving a Conflict	12	4.2%	6	1.6%	-61.4%
	High Crash Potential Conflicts	0	0.0%	0	0.0%	-
	Low Crash Potential Conflicts	12	4.2%	6	1.6%	-61.4%
Lancaster, PA	Total Pedestrian Crossings	253	-	308	-	-
	Crossings Involving a Conflict	4	1.6%	6	1.9%	+23.2%
	High Crash Potential Conflicts	0	0.0%	0	0.0%	-
	Low Crash Potential Conflicts	4	1.6%	6	1.9%	+23.2%
Aggregated for Unsignalized Sites Combined	Total Pedestrian Crossings	841	-	895	-	-
	Crossings Involving a Conflict	22	1.6%	15	1.1%	-32.3%
	High Crash Potential Conflicts	1	0.1%	0	0.0%	-100.0%
	Low Crash Potential Conflicts	21	1.5%	15	1.1%	-29.0%
Aggregated for Observational Sites Combined	Total Pedestrian Crossings	2,201	-	2,264	-	-
	Crossings Involving a Conflict	104	4.7%	80	3.5%	-25.2%
	High Crash Potential Conflicts	19	0.9%	16	0.7%	-18.1%
	Low Crash Potential Conflicts	85	3.9%	64	2.8%	-26.8%

3.4.2. Driver-Pedestrian Yield Assessment at Unsignalized Sites

Drivers were more likely to yield to pedestrians after asphalt art was installed. [Table 18](#) summarizes the results of the pedestrian-vehicle yielding assessment for unsignalized intersection sites (Durham, NC; Pittsburgh, PA; and Lancaster PA sites, and the three unsignalized sites combined, respectively). While yield behavior results varied at each site, when considering observed crossings at all three unsignalized locations aggregated, the occurrences of the first/all vehicles yielding increased by 27% and the occurrences of no vehicles yielding before the pedestrian group crossed decreased by 27%.



Table 18: Pedestrian-Vehicle Yield Assessment

	Pedestrian Crossing Behavior/Action	Before		After		Difference
		Crossings (#)	Crossings (%)	Crossings (#)	Crossings (%)	
Durham, NC	Crossings w/ Vehicle Present	50	-	38	-	-
	All drivers yielded to pedestrian(s) crossing	7	14.0%	3	7.9%	-43.6%
	One or more drivers did not yield, but drivers eventually yielded	6	12.0%	7	18.4%	+53.5%
	No drivers yielded—pedestrian crossed during a gap	37	74.0%	28	73.7%	-0.4%
Pittsburgh, PA	Crossings w/ Vehicle Present	26	-	30	-	-
	All drivers yielded to pedestrian(s) crossing	24	92.3%	28	93.3%	+1.1%
	One or more drivers did not yield, but drivers eventually yielded	0	0.0%	1	3.3%	-
	No drivers yielded—pedestrian crossed during a gap	2	7.7%	1	3.3%	-56.7%
Lancaster, PA	Crossings w/ Vehicle Present	36	-	93	-	-
	All drivers yielded to pedestrian(s) crossing	25	69.4%	71	76.3%	+9.9%
	One or more drivers did not yield, but drivers eventually yielded	5	13.9%	4	4.3%	-69.0%
	No drivers yielded—pedestrian crossed during a gap	6	16.7%	18	19.4%	+16.1%
Aggregated for Unsignalized Sites Combined	Crossings w/ Vehicle Present	112	-	161	-	-
	All drivers yielded to pedestrian(s) crossing	56	50.0%	102	63.4%	+26.7%
	One or more drivers did not yield, but drivers eventually yielded	11	9.8%	12	7.5%	-24.1%
	No drivers yielded—pedestrian crossed during a gap	45	40.2%	47	29.2%	-27.3%

3.4.3. Pedestrian Actions Assessment

Table 19 summarizes the results of the pedestrian action assessment. The percentage of occurrences of undesirable pedestrian actions are calculated for each observation period by dividing the number of occurrences of undesired crossing actions by total number of crossings. At both signalized sites, the percentage crossings involving undesirable pedestrian actions (crossing against the signal and crossing outside the vicinity of the marked crosswalk) decreased in the period after asphalt art was installed.

The percentage of crossings involving pedestrians crossing outside of the marked crosswalk increased in the after period at unsignalized observation when combined despite a reduction at the Pittsburgh site. Pedestrian crossing actions were not recorded for the Durham site.

3.5. Discussion of Behavior Assessment Results

As crashes almost exclusively have multiple contributing circumstances and are often random events, road user behavior is a critical indicator of road safety performance at a site in addition to crash data. Across each metric analyzed, results indicated that asphalt art has an overall positive impact on safe driver and pedestrian behavior, resulting in a reduced (-25%) rate of driver/vehicle-pedestrian conflicts, improved (+27%) rate of drivers yielding to pedestrians, and reduced (-27 to -38%) rate of undesirable pedestrian actions in the after observation period.

When considering road user behavior at sites by type of traffic control, driver/vehicle-pedestrian conflict rates were reduced at both signalized and unsignalized intersections while a greater rate of pedestrians were observed crossing outside of the marked crosswalk vicinity at unsignalized sites. The driver yield assessment was only performed for unsignalized sites only as traffic signals control vehicle and pedestrian movements at signalized intersections. Results indicate that drivers not only yielded immediately to pedestrians 27% more frequently after art was installed, but the frequency of no vehicles stopping for the pedestrian (pedestrian having to find a gap in traffic to cross) was reduced by 27%. While MUTCD rulings have suggested that the art may confuse drivers as to whether or not the art is part of a marked crosswalk, drivers yielded more often in the after observation period.



Table 19: Pedestrian Actions at Observational Study Locations

	Pedestrian Crossing Behavior/Action	Before		After		Difference
		Crossings (#)	Crossings (%)	Crossings (#)	Crossings (%)	
Trenton, NJ	Total Crossings	1035	-	1050	-	-
	Crossing Against Signal (Solid DON'T WALK)	363	35.1%	229	21.8%	-37.8%
	Crossing Outside of Marked Crosswalks	207	20.0%	139	13.2%	-33.8%
Richmond, VA	Total Crossings	325	-	319	-	-
	Crossing Against Signal (Solid DON'T WALK)	5	1.5%	1	0.3%	-79.6%
	Crossing Outside of Marked Crosswalks	68	20.9%	35	11.0%	-47.6%
Aggregated for Signalized Sites Combined	Total Crossings	1360	-	1369	-	-
	Crossing Against Signal (Solid DON'T WALK)	368	27.1%	230	16.8%	-37.9%
	Crossing Outside of Marked Crosswalks	275	20.2%	174	12.7%	-37.1%
Durham, NC	Total Crossings	301	-	215	-	-
	Crossing Outside of Marked Crosswalks	Not Available	Not Available	Not Available	Not Available	Not Available
Pittsburgh, PA	Total Crossings	287	-	372	-	-
	Crossing Outside of Marked Crosswalks	28	9.8%	23	6.2%	-36.6%
Lancaster, PA	Total Crossings	253	-	308	-	-
	Crossing Outside of Marked Crosswalks	42	16.6%	64	20.8%	+25.2%
Aggregated for Unsignalized Sites	Total Crossings	841	-	895	-	-
	Crossing Outside of Marked Crosswalks	70	5.1%	87	6.4%	+23.5%
Aggregated for Observational Sites Combined	Total Crossings	2201	-	2264	-	-
	Crossing Against Signal (Solid DON'T WALK) (Signalized Sites Only)	368	27.1%	230	16.8%	-37.9%
	Crossing Outside of Marked Crosswalks	345	15.7%	261	11.5%	-26.5%

4. Conclusion/Next Steps



As indicated in the results of both the historical crash analysis and observational behavior assessment, asphalt art had a strong positive correlation with improved safety benefits across aggregated and most individual study sites. Road user behavior clearly improved across the observed study sites in the after analysis periods.

At unsignalized intersections, there was a greater frequency of drivers immediately yielding to crossing pedestrians. Similarly, pedestrian-vehicle conflict assessments indicated a reduction in conflict rates at both signalized and unsignalized intersections. Good pedestrian crossing practices, such as crossing at marked crosswalk locations and crossing during the pedestrian phase, also improved substantially at signalized intersections with crossings against the signal dropping from 27% to 17%. Meanwhile, at unsignalized intersections, a few more people crossed outside the marked crosswalk, but the rate was still quite low (1% of people crossing the street).



On the basis of these positive findings, the study team recommends a significant expansion of this study to include asphalt art sites in a variety of roadway and land use contexts. This would allow for a more detailed assessment of which elements of projects (the art itself, additional traffic control, roadway, or roadside improvements, etc.) are the most effective, and also take into account other changes that may have taken place after the implementation period (redevelopment, population growth, changes to local bike or transit networks, etc.). It will also be critical to have control groups to account for the random variation in crash rates over time. This would determine a crash modification factor for asphalt art projects and provide the research grounding that some transportation professionals have requested.

This study also provides important context and precedent for the FHWA and others working to improve the MUTCD and other design guidance in the U.S. and globally. As the FHWA is currently revising the MUTCD, this analysis could contribute to more immediate changes to the language of that document to be more supportive of asphalt art projects going forward. Federal adoption of the language regarding color crosswalks proposed jointly by ITE and NACTO could clarify guidance and go a long way toward removing arbitrary barriers to asphalt art implementation. Additionally, since asphalt art is not technically prohibited by the current MUTCD and has only been restricted through interpretation memos that did not undergo the Federal regulatory process, the FHWA could remove this ambiguity with another such interpretation memo citing the results of this study and clarifying that the use of color in crosswalks and the use of artwork on roadways is in fact permitted under the 2009 MUTCD (excluding controlled-access highways such as Interstates/freeways).

Last and perhaps most important, this study, with a rigorous analysis of nearly two dozen projects across the country, provides supporting quantitative data for residents and city officials to use to implement asphalt art projects in their own communities. The results provide evidence to decision-makers that these projects will likely reduce crashes and improve safety for the most vulnerable users on the road.

By contributing to the body of research on this topic and through the Asphalt Art Initiative and work by cities, the study team hopes to encourage more arts-focused transportation projects that contribute to safer city streets across the country and around the world.



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