West Columbus Drive

Group 1
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CGN6933 Sustainable Transportation
Purpose and Need

Purpose

The purpose of the study is to evaluate the corridor for opportunities to improve mobility and safety for all travel modes, provide viable alternatives to automobile travel, and enhance the overall livability and economic vitality of the corridor as a gateway to West Tampa.

Need

- Improve safety for all modes
- Provide travel area/facilities for all modes
- Improve attractiveness of transit services
- Improve connectivity to nearby bicycle facilities and recreation areas
- Reduce the number of individual access points
- Reduce the number of conflict points for all travelers
- Support economic development in the commercial areas
- Provide an environment that has an inviting character
- Implement techniques that reduce the carbon footprint of vehicles, infrastructure, businesses, and travelers.
Goals & Objectives

Goal 1: Implement roadway improvements and outreach that will increase safety for all modes of travel.

- Objective: Reduce all crashes by 33% by 2025.
- Objective: Install facilities and markings to improve safety for bicyclists and pedestrians by 2025.
- Objective: Create educational campaign on traffic safety and crash prevention for travelers and local residents by 2020.
- Objective: Reduce conflicts points along the corridor by implementing various access management techniques and providing guidelines to be consulted during road and property construction by 2025.
Goal 2: Encourage and promote transportation alternatives other than the private passenger vehicle.

- Objective: Maintain and expand transit services by working with HART to improve the frequency of local bus service headways by 2030.
- Objective: Install traffic calming techniques to prioritize other modes of travel at various locations by 2030.
- Objective: Ensure pedestrian facilities are ADA compliant and provide ample connections to and from local businesses and neighborhoods by 2030.
- Objective: Reduce the level of VMT for automobiles on the corridor by 2% per year by encouraging other modes.
Goals & Objectives

**Goal 3:** Pursue the provision of an environmentally-friendly, comfortable, and aesthetically pleasing environment.

- Objective: Install solar-powered, pedestrian-scale street lights, as well as for other electric-power amenities going forward.

- Objective: Introduce design guidelines consistent with principles of green infrastructure, including but not limited to tree plantings, permeable surfaces, and natural infrastructure to handle stormwater by 2025.

- Objective: Adopt a form-based code overlay for the commercial properties to promote an engaging pedestrian environment by 2025.
Agenda

2025

▪ Improvement Areas
  • Pedestrian Environment
  • Bicyclist Environment
  • Public Transit
  • Vehicle Environment

▪ Major Projects
  • Commercial Gateway
  • Bike Intersection

▪ 2025 Cross-Sections

2040

▪ Land Use Vision

▪ Major Projects
  • Roundabout
  • “Bend” and Historical Park
  • River Park
  • Streetcar

▪ Next Steps
Study Area ROWs

Columbus Dr
Dale Mabry Hwy
Himes Ave
Lincoln Ave
Mac Dill Ave
Habana Ave
Howard Ave
Armenia Ave
Rome Ave

ROW (feet)

130 125 85 75 60 85 65 60 70 70 65
2025

Commercial Gateway

Bicycle Intersection

Close or No Left

Columbus Dr

Dale Mabry Hwy

Himes Ave

Lincoln Ave

Mac Dill Ave

Habana Ave

Armenia Ave

Howard Ave

Cemetery

ROW

130
125
85
75
60
85
65
65
65
65

(feet)
2025

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Pedestrian Environment

**Related Goals**

- Current Pedestrian Conditions
- Initial Improvements
  - Sidewalks
  - Amenities
  - Textured Crosswalks
  - Raised Crosswalks
  - Crosswalk Markings
  - Curb Ramp Design
  - Driveway Cross-Slopes
Current Pedestrian Conditions

- Some sidewalks < 6-feet wide
- Uneven and steep slopes
- Need for maintenance
- Lack of shade
- Poor bench conditions
- Need for litter clean-up
- Obstructions
Current Pedestrian Network/Connections
Initial Pedestrian Improvements

- **Wider Sidewalks**
  - Ensuring 6-foot wide sidewalks, and clear of obstructions

- **More Amenities**
  - Ensuring audible crosswalk buttons at all crosswalks
  - Ensuring pedestrian-scale lighting
  - Trees that provide shade
  - Benches, trash cans
Initial Pedestrian Improvements

- **Textured Crosswalks**
  - Across all crossing locations in corridor

- **Raised Crosswalks**
  - Across Lincoln Ave, Macdill Ave, & Armenia Ave

- **Crosswalk Markings**
  - High visibility ladder/Brick type markings
  - Yellow crosswalk signs
  - Double post pedestrian crossing signs at both ends of crosswalk
  - "Sharks Teeth" yield markings in advance of marked crosswalks
Initial Pedestrian Improvements

- **Curb Ramp Design**
  - Less than or equal to **1:12** ramp slope, at least 4’ wide, and have a 4’ wide landing at the top
  - Less than or equal to **1:20** (13.3%) cross-slope at the bottom of a curb ramp
    - If the counter slope is greater than 11.3% (3.0% roadway cross-slope), it is recommend to provide a 24” level ‘landing’ at the bottom of the curb ramp
  - Detectable warning half-domes
**Initial Pedestrian Improvements**

- **Driveway Cross-Slopes**, based on ADA Requirements for Sidewalk Crossing a Driveway
  - A portion of the driveway surface or turnout must, at a minimum, include a 4’ wide area with a 2% maximum cross-slope (Gradient 1:5) connecting the sidewalk on either side of the driveway

  **Cross Slope Ratio** = 1:5  
  **Percentage** = 2.0%  
  **Relative Measurement** = 1/4” per foot

**Running Slope: 1:12**
Stormwater Infrastructure

ArborFlow – has been developed as an effective and environmentally robust means of managing surface water run-off.

The ArborFlow stormwater management tree pit system filters out harmful pollutants, collects, processes and breaks down pollutants and contaminants carried in surface water.

- Inlets allow surface water to pass through the tree pit
- Water is discharged into surrounding subsoil, to be absorbed by the tree's root system, or
- Into specially designed flow control chamber positioned under the tree

Bicyclist Environment

- Current Bicycle Conditions
- Initial Improvements
  - Bicycle Lanes/Markings Throughout Corridor
  - Bicycle Signals
  - Bicycle Crossing Beacons
Current Bicycle Conditions

- No bike lane along corridor
- One-way bike sharrows on Armenia and Howard
  - No Rapid Rectangular Flashing Beacons (RRFD)
  - No bike signals
  - No bicycle detection for signals

Conflict Points!
Current Bicycle Network/Connections

Off Street Facilities (Sidewalk/Wide Sidewalk)

On Street Facilities
- Wide Outside Lanes (14+ ft)
- Paved Shoulders (4+ ft)
- Shared Lane Markings (Sharrows)
- Bike Lanes

Suggested Bike Routes

Suggested Bike Routes - Low Comfort

Paved Trails
- Existing
- Planned - Funded
Future Bicycle Network/Connections
Initial Bicycle Improvements

- **Bicycle Lanes/Markings Throughout Corridor**
  - 6-foot wide, green-painted bicycle lanes
  - 14-foot wide lanes where 6-foot lanes cannot be fit

- **Bicycle Protections**
  - Buffer bollards along lane at transition zones
    - West: Between Dale Mabry and Himes
    - East: Between Albany and the bridge
Initial Bicycle Improvements

- **Bicycle Signals for Cross Streets**
  - Improve safety for bicyclists traveling north-south or connecting with W Columbus Drive
  - Bicycle detection is used at signals to alert the signal controller of bicycle crossing demand
    - Push-buttons or by automated means (i.e., in-pavement loops, video, etc)
  - Otherwise, bicyclists must either wait for a vehicle to arrive, dismount and push the pedestrian button (if available), or cross illegally.
Initial Bicycle Improvements

- **Bicycle Crossing Beacons**
  - Rectangular Rapid Flash Beacons (RRFBs), a type of active warning beacon, use an irregular flash pattern to alert drivers of bicyclists
  - To be installed at all unsignalized intersections
    - Glen
    - Gomez
    - Albany
    - Fremont
  - Beacons can be actuated manually (i.e., push-button) or passively (i.e., detection)
Initial Bicycle Improvements

- **Solar Bike Paths**
  - The path is made of a light-emitting material called luminophores can glow for up to 10 hours in the dark.
  - This type of path can glow in multiple colors and highlights the bike path at night.
  - This cool bike path in Pruszków in Poland
    - Used blue to “match the Mazurian landscape” where lakes abound!
Public Transit

- Current Transit Conditions
- Initial Improvements
  - All Bus Stops
  - Select Bus Stops
  - Green Transit Infrastructure
Current Transit Conditions

- **On Corridor: Route 15**
  - 16 Total Bus Stops [13 Benches, 1 Simme-Seat, 1 Shelter (Rome)]
  - *Performance*: Ranks above average in route productivity across HART network
    - Over 21 Boardings per Service Hour and 1.7 per Service Mile

- **Intersects with Corridor: Route 14 (N-S along Howard/Armenia)**
  - *Performance*: Ranks in the bottom quarter of productivity

- **Nearby: Routes 32 & 45 operate on nearby Dale Mabry Hwy**
Initial Transit Improvements

- **All Bus Stops**, install a minimum of amenities
  - Route schedules, trash can, ADA-compliant benches, ADA-accessible boarding & alighting area

- **Select Bus Stops**, install premium amenities
  - 3 shelters along the corridor, at high productivity stops [Armenia (EB), MacDill (WB), and Himes (EB)]
  - 6 bike racks along the corridor, where space permits
Minimum Amenities

(may require permission or very minor easements)
Initial Transit Improvements (Himes, MacDill, Armenia)

Premium Shelter Placement
(may require permission or easements)

on Minimum or Recommended ROW
Initial Transit Improvements

Premium Shelter and Bike Rack Placement
(requires significant permission or easements)
Initial Transit Improvements

- Green Transit Infrastructure
  - Recommended for all shelters
  - Consider the following:
    - Visibility
    - Maintenance requirements
    - Stormwater runoff
    - Water conservation
    - Impacts to natural areas
    - Soil erosion
    - Existing and proposed utilities
Vehicle Environment

- Current Vehicle Environment
  - FDOT Functional Classification
  - Access Classification
    - Compliance

- Access Recommendations
Class 07 - Major Collector, Rural
## Access Classification

<table>
<thead>
<tr>
<th>Posted Speed (mph)</th>
<th>Connection Spacing (feet)</th>
<th>Median Opening Spacing (feet)</th>
<th>Signal Spacing (feet)</th>
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<tr>
<td></td>
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<td>Directional</td>
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<tr>
<td>35 mph or less</td>
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<td>660</td>
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<tr>
<td>&quot;Special Cases&quot;</td>
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<td>35 mph or less</td>
<td>245</td>
<td>660</td>
<td>1320</td>
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<tr>
<td>36 - 45 mph</td>
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<td>1320</td>
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<tr>
<td>Over 45 mph</td>
<td>660</td>
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<td>2640</td>
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</table>
Access Compliance

- **Signals**: All (7) comply with 1320-foot spacing, except between (1):
  - Armenia & Howard (680 ft)

- **Median Openings**: One (1) complies with 660/1320-foot spacing, and not otherwise (2):
  - Himes & Glen (two-way median, 685 ft)
  - Lincoln & N St Vincent (one-way median, 325 ft)

- **Connections**: Only three (3) comply with 440-foot spacing, along:
  - Marti Cemetery
  - Albany and Fremont (westbound, 610 ft)
  - Fremont and Rome (westbound, 445 ft)
Median Recommendations

- Install a non-traversable median (NTM)
Connections Recommendations

- **Close/Limit Connections (7) from Local Streets (or Right-Only)**
  - Reduces access points
  - Diverts some, minimal local traffic
  - Improves safety for bicycle/pedestrian travel

- **Including the following:**
  - N St Vincent Ave (EB and WB)
  - N Mantanzas Ave (WB)
  - N Tampania Ave (EB and WB)
  - N St Peter Ave (EB)
  - N Albany Ave (WB) (diagonal Albany only)
Connections Recommendations

- **Adopt Guidelines for Closing Connections from Driveways**
  - Accomplished as redevelopment occurs along the corridor, or from negotiated agreements with existing property owners, during roadway maintenance and reconstruction projects.
  - Below is only an example; the ultimate configuration would be determined during site plan review.
Connections Recommendations
2025
- Improvement Areas
  - Pedestrian Environment
  - Bicyclist Environment
  - Public Transit
  - Vehicle Environment
- Major Projects
  - Commercial Gateway
  - Bike Intersection
- 2025 Cross-Sections

2040
- Land Use Vision
- Major Projects
  - Roundabout
  - “Bend” and Historical Park
  - River Park
  - Streetcar
- Next Steps
Commercial Gateway & Multi-Modal Center

Short & Long-Term Phases

- Place-making
- Bike-sharing
- Pedestrian connections
- Transit on-site
- Multi-modal center
- Connect to Downtown
- Connect to Airport
- Neighborhood businesses
- Market for community
Bike Intersection Armenia

- Armenia Ave
- Traffic Calming
- Curb Extension same as Existing Curb Radius
- Cars go Around Bicycle Path
- Continuous Paths
- W Columbus Dr

Armenia Ave
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2025 Cross-Sections
Narrow Concept

2½' 6' 2½' 4' 10' 10' 10' 10' 4' 2' 6' Sidewalk Drive lane Drive lane Drive lane Drive lane 4' 2' Sidewalk

67'
Cemetery Ramp
River Concept
Agenda

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Land Use

- Future Land Use
- Form-Based Code
  - Activated Storefronts
  - Commercial Site Design
Future Land Use

Currently...

- Residential FARs
  - 0.35 to 0.50
- Commercial FARs
  - 2.0 to 3.5

We Recommend...

- Raising FARs by 50%
- Setting minimum FARs
- Setting minimum lot coverage %’s
- Reduced street setbacks
Form-Based Code

- Per the City of Tampa about “Why Are Form-Based Codes Effective?”
  - Pictures tell the story
  - Easy-to-find inspiration
  - Great for mixing uses
  - Better, faster, simpler process

- Promote pedestrian-friendly and non-autocentric land uses and urban forms
  - For example, “build-to lines” will enhance street-fronting activity
Commercial Site Design

- “Shelter and shade for pedestrians shall be provided along streets, public ROW and next to areas used by the public through the use of trees, green infrastructure, awnings, balconies, overhangs, etc.”
- “A contribution of pedestrian amenities, including benches, public art, public open space and street furniture shall be demonstrated.
- Property owners shall provide a 6-foot sidewalk in the public ROW and shall align with and connect to that of adjacent and contiguous properties.”
- “On-site pedestrian circulation shall be provided between structures, and properties, through the use of a sidewalk, and established through the use of consistent paving materials (i.e. textured or colored pavement, paver blocks).”
Key Examples
Key Examples
Agenda

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- Next Steps
Himes Roundabout Cont.

- Two lane roundabout
- Traffic calming
- Reducing high crashes at Himes
- Deceleration curves on approaches
- Able to accommodate future demand (up to 45K/day)
Challenges with Cemetery Cross Section

- Dangerous for pedestrians to walk
- No room for bicyclists
- Sidewalk is not for accessible for disabled persons
- ROW is as low as 60 ft
- Difficult to fit two heavy vehicles at the same time
Cemetery “Bend” and Historical Park
Transportation Benefits of “Bend” & Park

● Benefits to Travelers
  ▪ Removes road bottleneck and regularizes ROW
  ▪ Provides wider sidewalks
  ▪ Provides 6-foot bicycle lane
  ▪ ADA accessible
  ▪ Accommodates transit and freight vehicles
  ▪ Provides a connection point for different travel modes
Property Acquisition for the “Bend” & Park

- Recommend that the City of Tampa purchase or lease the two properties across from the cemetery.

- Benefits:
  - Adds green space to the corridor
  - Adds a mix of uses in a mostly commercial/residential corridor
  - Place-making and integration with the bike-share system
  - Historic and cultural value
  - Host community events
  - Recreation & healthy living
Riverfront Park

- Eastern anchor for corridor
- Gateway from Downtown
The present historic streetcar system in Downtown Tampa is planning for expansion.

An added enhancement to the currently proposed ideas can be through W Columbus Dr. to the International Plaza.

For now, we propose to connect W. Columbus at an “Albany Station”.
Planned Expansion of Streetcar in Tampa

Source: InVision: Tampa Streetcar Study
W Columbus Streetcar Connection
Proposed Streetcar “Albany Station”

- Currently vacant parcel at eastern edge of corridor in proximity to Downtown
Agenda

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▪ Improvement Areas
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▪ Next Steps
Next Steps

- Future of Streetcar
- Study to Finalize Roundabout Design
- Develop Design and Form-Based Code Guidelines
- Begin Discussions with Landowners
Long-Term Plan for Streetcar
Overview of the Proposed Expansion

▪ 7.5 miles one way trip with two loops on either ends.
▪ Connects with the Downtown-Ybor loop of the future expansion proposals.
▪ A total of 20 stops on the route which are placed considering the usefulness of the places nearby.
▪ Connection with International Plaza at 3 different points.
  • Includes key activity centers such as Raymond James Stadium.
▪ Routed north of the cemetery and park as to avoid conflicts.
Thank You!
Initial Improvements

Area of Focus

Absence of level landing

Fixed Obstruction

Ramp cross slope

Top Landing

Tactile Warning

Moveable Obstruction

Heaving

No Ramp

Ramp Transition

Bottom Landing

this slide is kind of confusing, too many different topics...
Widen the sidewalk.

Narrow down to the sufficient width for back up the car.

- 65-ft ROW & Bike/Ped redirect onto nearby property.
- Add signalized crosswalk with flashing yellow warning beacons
- Painted mid-block facing on anticipated traffic.
- Lower the speed limit from 40 mph to 35 mph.
d. Parking. On site surface parking for non-residential uses shall be located in the rear or side yard of the property. Crime prevention through environmental design (CPTED) techniques shall be incorporated in the design of all parking areas (i.e. visibility, access, and security).

1. An alternative parking placement may be considered by the zoning administrator (and/or his or her designee) if consistent with the purpose and intent described of this section. Alternative parking layouts must provide increased landscape buffering (e.g., one (1) tree for every twenty (20) feet of vehicular use area (VUA) abutting the public right(s)-of-way and a screen consistent with section 27-285). Vehicular use areas, with the exception that planting be done at thirty (30) inches on center), and increase pedestrian amenities (e.g., street furniture, decorative paver blocks, planters, etc.).

2. The facade of freestanding parking structures fronting public right(s)-of-way may consist of commercial retail or office uses on the ground level.

3. Vehicle access and flow shall be designed to have minimal impact on pedestrian circulation, and there must be continuity across the mouth of all curbcuts, subject to section 22-315. Same—Number permitted.
Residential Parking (WT Overlay)

8. Parking: Off-street parking requirements as stated in Article VI, Division 3, Off-Street Parking and Loading shall be met, except as follows:
   i. For property within the West Tampa National Historic District, a residential dwelling shall be required one (1) off-street parking space per unit.
   ii. For single-family detached dwellings, the vehicular entrance to an enclosed garage must be setback a minimum eight (8) feet greater from the front façade of the building.
   iii. For two-family, single-family semi-detached, single-family attached and multi-family residential uses, the following standards shall apply:
      a. On site common surface parking areas shall be located in the rear or side yard of the property. Crime prevention through environmental design (CPTED) techniques shall be incorporated in the design of all parking areas (i.e., visibility, access, and security).
      b. An alternative parking placement may be considered by the zoning administrator (and/or his or her designee) if consistent with the purpose and intent described of this section. Alternative parking layouts must provide increased landscape buffering (e.g., one (1) tree for every twenty (20) feet of vehicular use area (VUA) abutting the public right(s)-of-way and a screen consistent with section 27.285 Vehicular Use Areas, with the exception that planting be done at thirty (30) inches on center), an increase pedestrian amenities (e.g., street furniture, decorative paver blocks, planters, etc.).
      c. The façade of freestanding multi-family parking structures facing public right(s)-of-way and in a commercial zoning district must comply with section 27.241(f)(1)(d)(2), above or be designed so residential units front the public right(s)-of-way.
      d. Vehicle access and flow shall be designed to have minimal impact on pedestrian circulation, and there must be continuity across the mouth of all curbs. Subject to section 22.335. Same-Number permitted.
      e. The vehicular entrance to an enclosed garage for single-family semi-detached or attached dwelling units must be setback a minimum two (2) feet greater from the front façade of the building. When parking is provided from the front, a minimum of one (1) parking space shall be provided in a garage or a carport, either of which must be structurally integrated within the principal dwelling unit (section 27.282.3(f)(2) shall not apply within the West Tampa Overlay District. Structures shall not be designed with a two-car (side by side) garage where access to the garage is on the front façade of the structure.
   iv. For all residential uses, no driveway shall be constructed from the road to the front yard face of any single-family attached, semi-detached or detached structure unless providing vehicular access to an attached carport or garage and no driveway shall be constructed from the road to the front yard face of any single-family use structure with a lot width dimension of thirty-three (33) feet or less where there is a non-vacated alleyway, unless providing vehicular access to an attached carport where there is a non-vacated alleyway.
Here for reference only, they will be presented beforehand.
Total Crashes by Intersection

Fatality (3 persons) W Columbus Dr and Mantanzas Ave
Speeding Vehicle Hit Fixed Object on Wrong Side of Road at Night
Total Crashes by Year

Number of crashes by year

- 2013: 637 crashes
- 2014: 83 crashes
- 2015: 103 crashes
- 2016: 116 crashes
- 2017: 218 crashes
Total Crash Summary

- **Total Crashes**: 637
  - **Fatal Crashes**: 1 (0.2%)
  - **Injury Crashes**: 145 (22.8%)
    - 34 Serious (5.3%)
  - **PDO**: 491 (77.1%)
  - **Bike/Ped Involved**: 1 (0.2%)
  - **Bike/Ped**: 5 (0.8%)
  - **Bike/Ped**: 6 (0.9%)
    - 3 Serious (0.5%)
Total Crashes by Intersection
Ped & Bike Crash Summary

Total of 11 Ped & Bike Crashes from 2013 to 2017

Crashes by Type
- Pedestrian: 8
- Bike: 3

Crashes by Time of Day
- Night Time (5:00 PM - 6:00 AM): 4
- Day Time (6:00 AM to 6:00 PM): 7
Ped & Bike Crashes by Intersection
Total Crashes by Collision Type & Top Causes

3 Top Crash Causes:

- Aggressive Driving: 26%
- Night Time Driving: 15%
- Aging Driver: 9%

Graph showing distribution of crash causes with percentages.
Behavioral Cause of Crashes

- Drove Too Fast for Conditions: 16
- Operated MV in Careless or Negligent Manner: 116
- Failed to Keep in Proper Lane: 25
- Ran Stop Sign: 11
- Ran Red Light: 44
- Followed to Closely: 69
- Failed to Yield Right of Way: 110
Total Crashes by Time of Day

- Day Light: 456
- Dark Light: 154
- Dusk: 0
- Dawn: 0
Total Crashes by Time of Day and Driver Details

<table>
<thead>
<tr>
<th></th>
<th>Total Crashes</th>
<th>Dark light</th>
<th>Day Light</th>
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<tbody>
<tr>
<td>Impaired</td>
<td>27</td>
<td>21</td>
<td>6</td>
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<tr>
<td>AgingDriver</td>
<td>118</td>
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<tr>
<td>TeenDriver</td>
<td>54</td>
<td>13</td>
<td>41</td>
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</table>
Total Crashes by Weather

- Clear: 492
- Cloudy: 65
- Rain: 77
- Other, explain in narrative: 3

No. of crash