

User Documentation

Onward

Group 4

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Onward is an advanced traffic monitoring application that allows users to view future traffic conditions to properly plan future trips and to address traffic concerns in areas of interest.

System Requirements

To use this program, we recommend that you use a desktop, laptop or mobile device with any of the following:

The current version of Microsoft Edge or Internet Explorer 10 or 11 (Windows).

The current and previous version of Chrome or Firefox (Windows, macOS, or Linux).

The current and previous version of Safari (macOS or iOS).

Landing Page

To begin using Onward, go to the browser of choice and enter the following url address <http://www.onwardtraffic.com/> and you will be greeted with the following Landing Page.

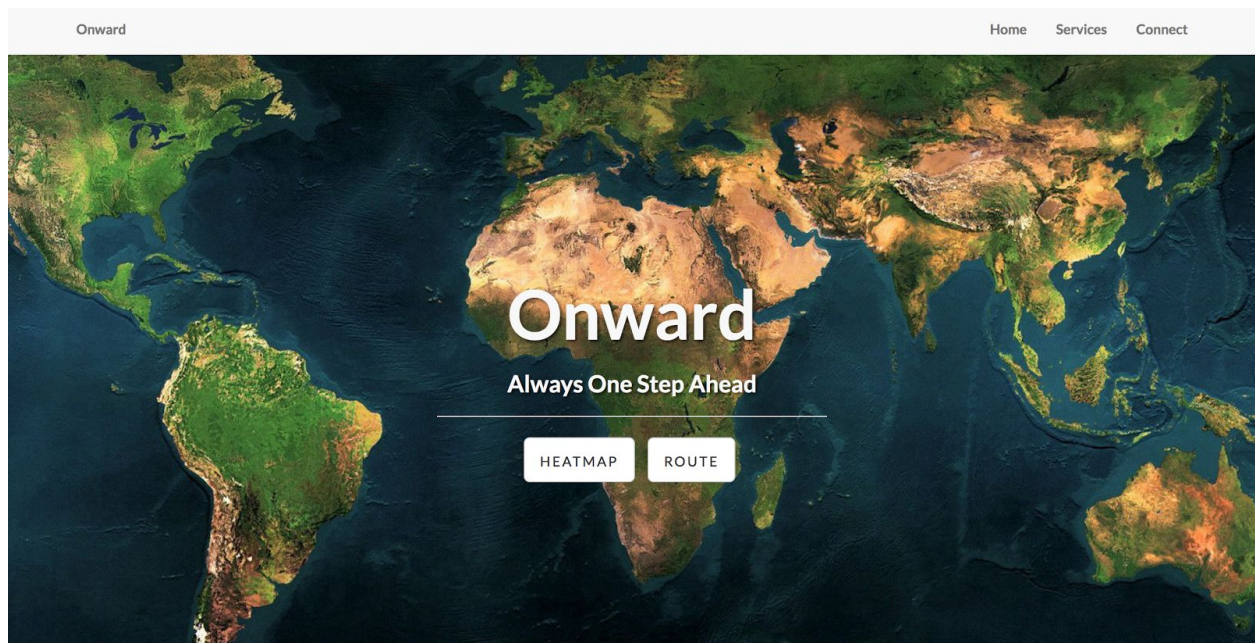


Figure 1: Landing Page (1)

Here you can view the options to navigate to the features Heat Map or Route. Currently, the functional features are Heat Map and Route and you will be directed to the respective web pages for those features if you click their respective buttons. If you would like to view

information about the features you can scroll down on the same landing page to see a brief description of each feature, as seen in Figure 2.

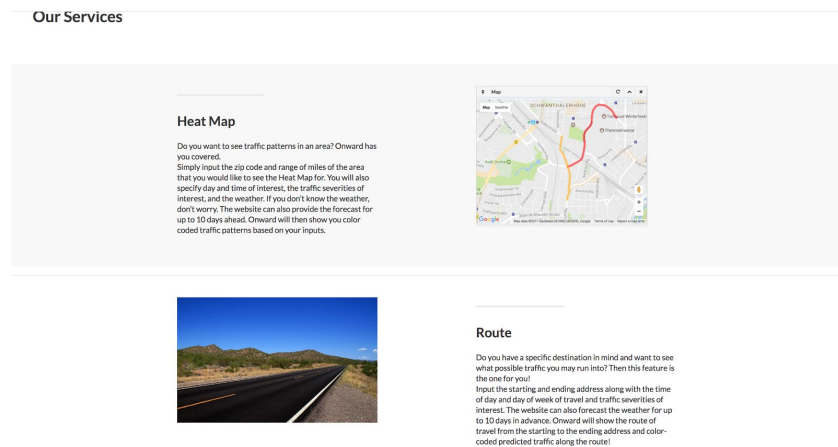


Figure 2: Landing Page (2)

Heat Map Feature

Choosing the “Heat Map” feature from the landing page will direct you to the following web page.

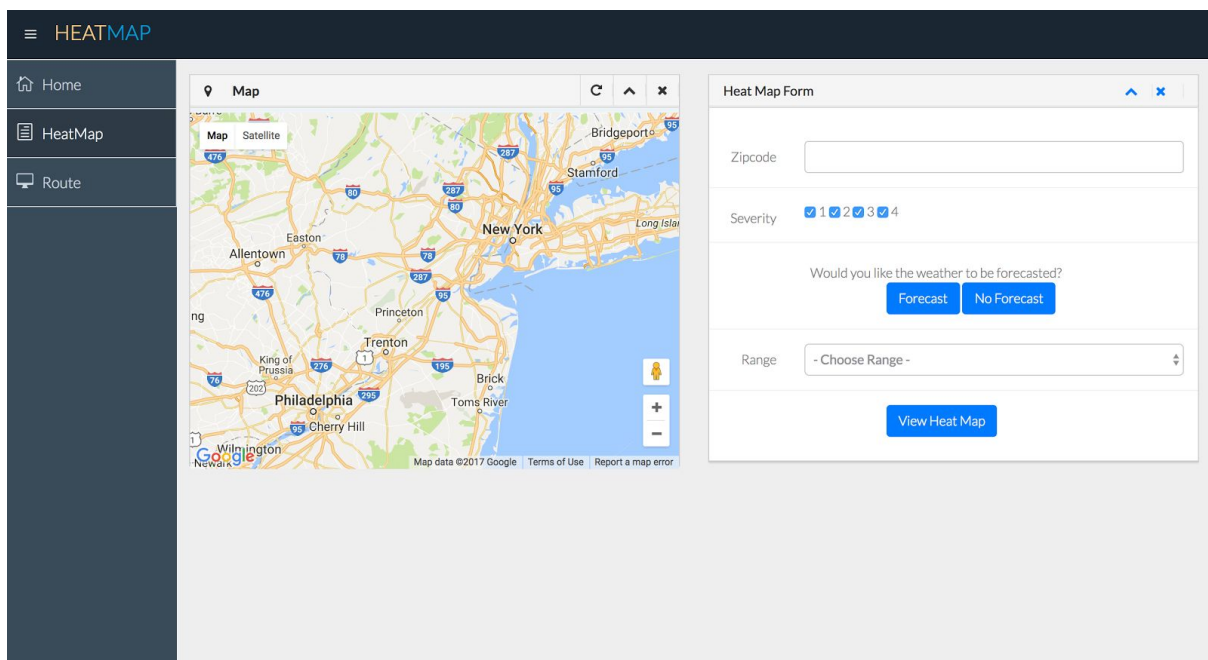


Figure 3: Heat Map

This web page shows an interactive map and an input form. The Heat Map feature will show you the traffic for a specific area, based on a Zip Code and a range of miles for a time of day for a day of the week or date based on a weather condition, as traffic depends on these parameters. The user will select “Forecast” or “No Forecast” to choose whether they want to use forecasted weather or weather conditions that they are specifically interested in.

Figure 4: Heat Map - No Forecast

If you wish to use weather conditions of your own interest, click the “No Forecast” button and fill the form shown above.

- Enter a 5 digit valid zip code in the “Zip Code” field.
- Choose what “severities” of traffic you want to view on the map via a checkbox input. A “1” is low impact traffic (color: green), a “2” is minor impact traffic (color: yellow), “3” is moderate impact traffic (color: orange) , and “4” is serious impact traffic (color: red). You may input any combination of severities and those respective severities will be shown on the map indicated by the colors stated.
- Next Select the “Time of Day” from the “Choose Time” dropdown that will provide the options of 12:00 AM to 11:00 PM. Choosing a time will tell Onward to show traffic that will likely occur at that time for the Day that you will choose.
- Next Select “Day of Week” from the “Choose Day of Week” drop down to choose either “Monday”, “Tuesday”, “Wednesday”, “Thursday”, “Friday”, “Saturday” or “Sunday”. This will be the day of the week Onward will display the traffic condition for.
- Select “Weather” from the drop down “Choose Weather” that has the options “Any Weather”, “Clear”, “Snow”, “Cloudy”, “Rain”, and “Fog”. The last 5 options are general weather conditions the you may choose from to see how that weather condition may

affect traffic conditions in the area of interest, and the option “Any Weather” will show the traffic conditions independent of weather condition.

- Next Select a “Range” from the “Choose Range” drop down. This will be how many miles from the center of the zip code that you have chosen that you wish for Onward to report traffic information for. The options are “5” , “10” , “15” , “20” miles.
- Click “View Heat Map”. Onward will now use your inputs to show you traffic information on the map based on these specific inputs. Zoom out to see more of the map.

Example:

The screenshot displays the Onward Heat Map interface. On the left is a Google Map of the New York City area, with a red pin located in the Clifton, NJ area. On the right is the 'Heat Map Form'. The form contains the following fields and options:

- Zipcode: 07028
- Severity: Radio buttons for 1, 2, 3, and 4. All are selected.
- Would you like the weather to be forecasted?: Two buttons, 'Forecast' and 'No Forecast'. The 'No Forecast' button is highlighted in blue.
- Time of Day: 5:00 PM
- Day of Week: Friday
- Weather: Clear
- Range: 20 miles
- A 'View Heat Map' button is at the bottom of the form.

Figure 5: Heat Map No Forecast Example

If you are interested in a specific day that is in the next 10 days, Onward provides you the option to use forecasted weather provided by “The Weather Company” so you do not need to choose a weather condition. To exercise this option, click the “Forecast” button.

The screenshot shows the HEATMAP application interface. On the left is a dark sidebar with navigation links: Home, HeatMap, and Route. The main area is split into two panels. The left panel displays a Google Map of the New York/Philadelphia region, with labels for cities like Wilkes-Barre, Allentown, Reading, Easton, Princeton, Trenton, Philadelphia, Cherry Hill, Toms River, Brick, New York, Stamford, Bridgeport, and Long Island. The right panel is titled 'Heat Map Form' and contains the following fields and controls:

- Zipcode:** A text input field.
- Severity:** A row of four checkboxes labeled 1, 2, 3, and 4.
- Forecast Selection:** A question 'Would you like the weather to be forecasted?' followed by two buttons: 'Forecast' and 'No Forecast'.
- Time of Day:** A dropdown menu with the placeholder text '- Choose Time -'.
- Date:** A dropdown menu with the placeholder text '- Choose Date -'.
- Range:** A dropdown menu with the placeholder text '- Choose Range -'.
- View Heat Map:** A blue button at the bottom of the form.

Figure 6: Heat Map - Forecast


- Enter a 5 digit valid zip code in the “Zip Code” field.
- Choose what “severities” of traffic you want to view on the map via a checkbox input. A “1” is low impact traffic (color: green), a “2” is minor impact traffic (color: yellow), “3” is moderate impact traffic (color: orange) , and “4” is serious impact traffic (color: red). You may input any combination of severities and those respective severities will be shown on the map indicated by the colors stated.
- Next Select the “Time of Day” from the “Choose Time” dropdown that will provide the options of 12:00 AM to 11:00 PM. Choosing a time will tell Onward to show traffic that will likely occur at that time for the Day that you will choose.
- Next Select “Date” from the “Date” drop down. You will be able to choose a date that is within the next 10 days from the current date. Onward will then use this date to get weather from The Weather Channel and use this date for day of the week.
- Next Select a “Range” from the “Choose Range” drop down. This will be how many miles from the center of the zip code that you have chosen that you wish for Onward to report traffic information for. The options are “5” , “10”, “15”, “20” miles.
- Click “View Heat Map”. Onward will now use your inputs to show you traffic information on the map based on these specific inputs, as well as inform you the weather for the time and day. Zoom out to see more of the map.

Example:

Map

Map

Satellite



Weather Forecast for April 28, 2017 at 5:00 pm: Clear

Heat Map Form

Zipcode

07028

Severity

☒ 1 ☒ 2 ☒ 3 ☒ 4

Would you like the weather to be forecasted?

Forecast

No Forecast

Time of Day

5:00 PM

Date

April 28, 2017

Range

20 miles

View Heat Map

Figure 7: Heat Map With Forecast Example

Route Feature

Choosing the “Route” feature from the landing page will direct you to the following web page.

The screenshot displays the 'ROUTE' web application. The interface includes a dark blue header with a hamburger menu icon and the word 'ROUTE' in orange. A sidebar on the left contains three links: 'Home', 'HeatMap', and 'Route'. The main content area is divided into two sections. The left section shows a Google Map of the New York/Philadelphia region with traffic overlays. The right section is a 'Route Form' with the following elements: 'Starting Address' and 'Ending Address' input fields; a 'Severity' section with checkboxes for 1, 2, 3, and 4 (all are checked); an 'Alternative Route' checkbox; and a section asking 'Would you like the weather to be forecasted?' with 'Forecast' and 'No Forecast' buttons. At the bottom of the form is a 'View Route' button.

Figure 8: Route

This web page shows an interactive map and an input form. The Route feature will show you the traffic for a route for which you will specify “Starting Address” and “Ending Address” for a time of day for a day of the week or date based on a weather condition, as traffic depends on these parameters. The user will select “Forecast” or “No Forecast” to choose whether they want to use forecasted weather or weather conditions that they are specifically interested in.

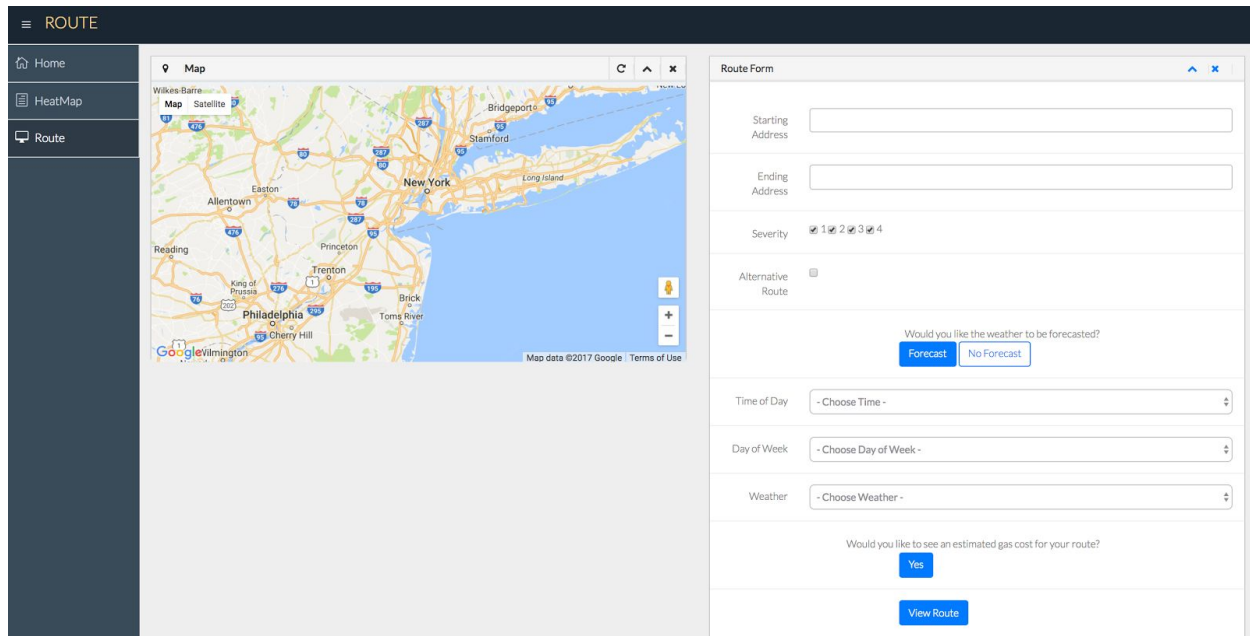


Figure 9: Route - No Forecast

If you wish to use weather conditions of your own interest, click the “No Forecast” button.

- Enter a valid starting address in the “Starting Address” field.
- Enter a valid ending address in the “Ending Address” field.
- Choose what “severities” of traffic you want to view on the map via a checkbox input. A “1” is low impact traffic (color: green), a “2” is minor impact traffic (color: yellow), “3” is moderate impact traffic (color: orange) , and “4” is serious impact traffic (color: red). You may input any combination of severities and those respective severities will be shown on the map indicated by the colors stated.
- Next Select the “Time of Day” from the “Choose Time” dropdown that will provide the options of 12:00 AM to 11:00 PM. Choosing a time will tell Onward to show traffic that will likely occur at that time for the Day that you will choose.
- Next Select “Day of Week” from the “Choose Day of Week” drop down to choose either “Monday”, “Tuesday”, “Wednesday”, “Thursday”, “Friday”, “Saturday” or “Sunday”. This will be the day of the week Onward will display the traffic condition for.
- Select “Weather” from the drop down “Choose Weather” that has the options “Any Weather”, “Clear”, “Snow”, “Cloudy”, “Rain”, and “Fog”. The last 5 options are general weather conditions the you may choose from to see how that weather condition may affect traffic conditions in the area of interest, and the option “Any Weather” will show the traffic conditions independent of weather condition.
- Click “View Route”. Onward will now use your inputs to show you traffic information on the map based on these inputs. Zoom out to see more of the map.

Example:


ROUTE

Home

HeatMap

Route

Map



Route Form

Starting Address

2035 Basswood CT Toms River NJ

Ending Address

Paramus NJ

Severity

☒ 1 ☒ 2 ☒ 3 ☒ 4

Alternative Route

☐

Would you like the weather to be forecasted?

Forecast

No Forecast

Time of Day

9:00 PM

Day of Week

Wednesday

Weather

Clear

Would you like to see an estimated gas cost for your route?

Yes

View Route

Figure 10: Route No Forecast Example

If you are interested in a specific day that is in the next 10 days, Onward provides you the option to use forecasted weather provided by The Weather Company so you do not need to choose a weather condition. To exercise this option, click the “Forecast” button.

The screenshot shows the 'ROUTE' section of the Onward application. On the left is a sidebar with 'Home', 'HeatMap', and 'Route' (selected). The main area is split: the left half shows a Google Map of the New York/Philadelphia region with traffic overlays; the right half is the 'Route Form'. The form contains the following elements:

- Starting Address:** A text input field.
- Ending Address:** A text input field.
- Severity:** Radio buttons for 1, 2, 3, and 4. All are currently selected.
- Alternative Route:** A checkbox that is currently unchecked.
- Weather Forecast:** A section titled 'Would you like the weather to be forecasted?' with 'Forecast' and 'No Forecast' buttons. 'Forecast' is highlighted in blue.
- Time of Day:** A dropdown menu currently showing '- Choose Time -'.
- Date:** A dropdown menu currently showing '- Choose Date -'.
- Gas Cost:** A section titled 'Would you like to see an estimated gas cost for your route?' with a 'Yes' button.
- View Route:** A blue button at the bottom of the form.

Figure 11: Route With Forecast

- Enter a valid starting address in the “Starting Address” field.
- Enter a valid ending address in the “Ending Address” field.
- Choose what “severities” of traffic you want to view on the map via a checkbox input. A “1” is low impact traffic (color: green), a “2” is minor impact traffic (color: yellow), “3” is moderate impact traffic (color: orange) , and “4” is serious impact traffic (color: red). You may input any combination of severities and those respective severities will be shown on the map indicated by the colors stated.
- Next Select the “Time of Day” from the “Choose Time” dropdown that will provide the options of 12:00 AM to 11:00 PM. Choosing a time will tell Onward to show traffic that will likely occur at that time for the Day that you will choose.
- Next Select “Date” from the “Date” drop down. You will be able to choose a date that is within the next 10 days from the current date. Onward will then use this date to get weather from The Weather Channel and use this date for day of the week.
- Click “View Route”. Onward will now use your inputs to show you traffic information on the map based on these inputs as well as inform you the weather for the time and day. Zoom out to see more of the map.

Example:

The screenshot shows a web application interface for route planning. On the left is a Google Map of the New York City area, with a blue route highlighted from East Brunswick, NJ to New York, NY. Below the map, the text reads: "Weather Forecast for April 28, 2017 at 5:00 pm: Clear". On the right is a "Route Form" with the following fields and options:

- Starting Address: 7 Hancock Court East Brunswick NJ
- Ending Address: 28 Liberty Street New York
- Severity: ☒ 1 ☒ 2 ☒ 3 ☒ 4
- Alternative Route: ☐
- Would you like the weather to be forecasted?:
- Time of Day: 5:00 PM
- Date: April 28, 2017
- Would you like to see an estimated gas cost for your route?:
-

Figure 12: Route With Forecast Example

Alternative Route

There is an option also to select the “Alternative Route” checkbox. If this checkbox is checked off before clicking “View Route” then the user can view 2 routes between their starting and end ending address and have the ability to switch which route they view traffic on.

Example:

The screenshot displays a web application interface for route planning. On the left, a sidebar contains navigation links: Home, HeatMap, and Route. The main area is split into two panels. The left panel shows a map of the New York City area with a route highlighted in green. Below the map, there are buttons for 'Primary' and 'Alternate' routes, and a weather forecast for April 28, 2017 at 8:00 pm: Clear. The right panel is the 'Route Form', which includes fields for 'Starting Address' (2035 Basswood CT Toms River NJ) and 'Ending Address' (Paramus NJ). It also has a 'Severity' dropdown set to 1, a checked 'Alternative Route' checkbox, and buttons for 'Forecast' and 'No Forecast'. Below these are dropdowns for 'Time of Day' (8:00 PM) and 'Date' (April 28, 2017), followed by a 'Yes' button for 'Would you like to see an estimated gas cost for your route?' and a 'View Route' button.

Figure 13: Route and Alternative Route Example

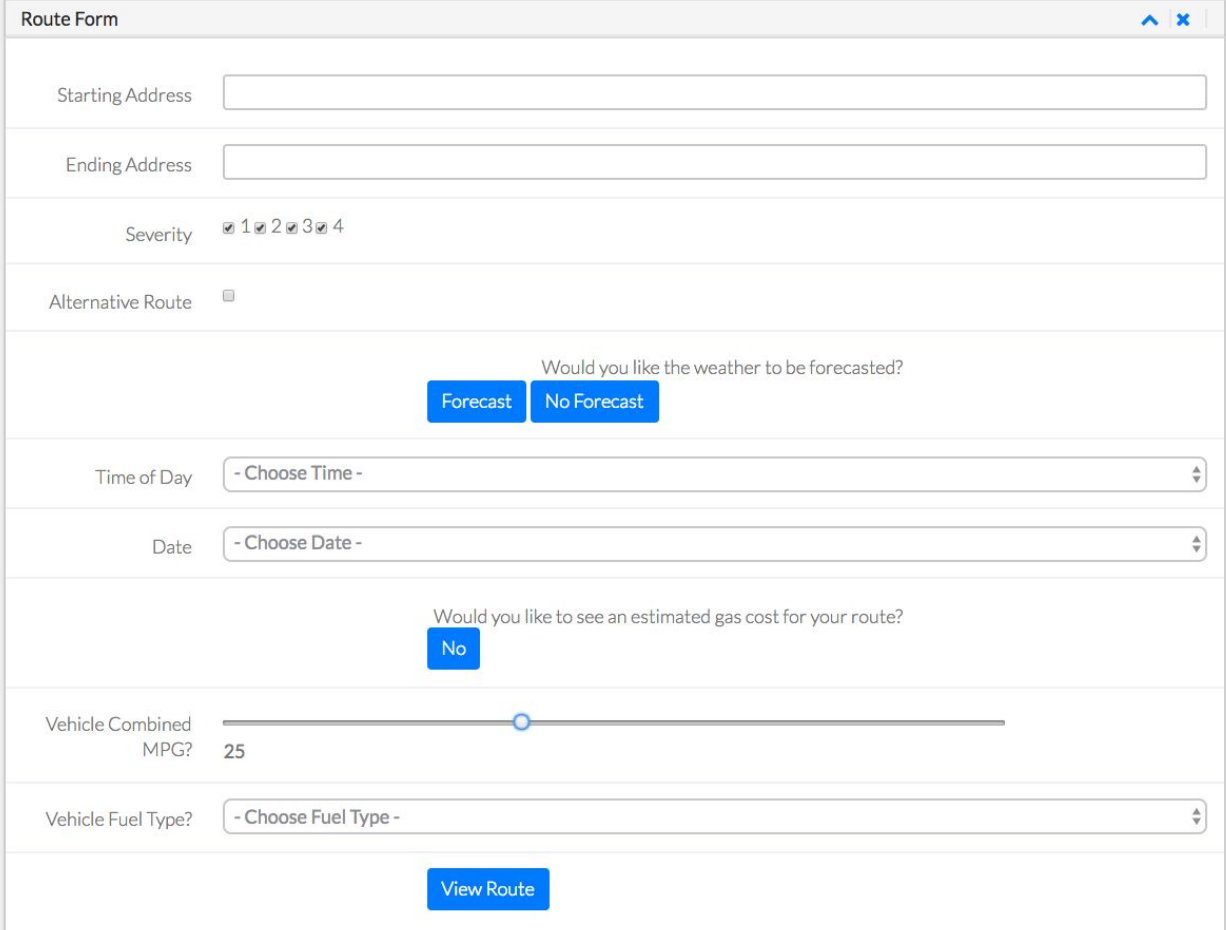
This screenshot is similar to Figure 13, but it shows the 'Alternate' route selected. The map on the left now displays a different route in blue. The 'Route Form' on the right remains the same, with the 'Alternative Route' checkbox checked. The 'View Route' button is still visible at the bottom.

Figure 14: Clicking Alternative Route Example

You may click the “Primary” and “Alternate” button to switch between viewing traffic on the Primary or Alternate route.

Cost of Gas

You also have the option to view the cost of gas along their route(s). They simply click “Yes” to the question asking “Would you like to see an estimated gas cost for your route?”.



The image shows a web form titled "Route Form" with a close button (X) in the top right corner. The form contains several input fields and buttons:

- Starting Address:** A text input field.
- Ending Address:** A text input field.
- Severity:** A row of four checkboxes labeled 1, 2, 3, and 4. All four checkboxes are checked.
- Alternative Route:** A checkbox that is currently unchecked.
- Weather Forecast:** A question "Would you like the weather to be forecasted?" followed by two blue buttons: "Forecast" and "No Forecast".
- Time of Day:** A dropdown menu with the text "- Choose Time -".
- Date:** A dropdown menu with the text "- Choose Date -".
- Gas Cost:** A question "Would you like to see an estimated gas cost for your route?" followed by a blue button labeled "No".
- Vehicle Combined MPG:** A slider control. The label "Vehicle Combined MPG?" is on the left, and the value "25" is displayed below the slider. The slider has a blue handle in the middle.
- Vehicle Fuel Type:** A dropdown menu with the text "- Choose Fuel Type -".
- View Route:** A blue button at the bottom center of the form.

Figure 15: Form For Gas Cost

You will be prompted to enter your Combined MPG using a slider and the Vehicle Fuel Type using the drop down where you can select “Regular”, “Midgrade”, “Premium”, or “Diesel”. We will use this information along with the current price of gas as well as the details of your route to calculate the cost of your trip along route(s). If you are unaware of your vehicle fuel details, we provide a Fuel Economy widget that helps you know the MPG and Fuel Type.

www.fueleconomy.gov

Find a Car

Select Year

Select Make

Select Model

Select Options

U.S. DEPARTMENT OF ENERGY

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Get Widget

www.fueleconomy.gov

2014 Nissan Altima

3.5 L, 6 cyl, Automatic (AV-S7), Regular Gasoline



EPA Fuel Economy

25 MPG

22 combined

31 city

31 hwy

Find Another Car

U.S. DEPARTMENT OF ENERGY

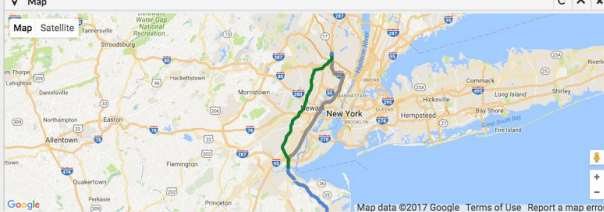
U.S. ENVIRONMENTAL PROTECTION AGENCY

Get Widget

Figure 16: Fuel Economy Widget

Map

Map Satellite



Primary Alternate

Weather Forecast for May 3, 2017 at 9:00 pm: Clear

Estimated cost for primary route is \$7.78

Estimated cost for alternate route is \$8.00

www.fueleconomy.gov

Find a Car

Select Year

Select Make

Select Model

Select Options

U.S. DEPARTMENT OF ENERGY

U.S. ENVIRONMENTAL PROTECTION AGENCY

Get Widget

Route Form

Starting Address

2035 Basswood CT Toms River NJ

Ending Address

Paramus NJ

Severity

1 2 3 4

Alternative Route

☒

Would you like the weather to be forecasted?

Forecast No Forecast

Time of Day

9:00 PM

Date

May 3, 2017

Would you like to see an estimated gas cost for your route?

No

Vehicle Combined MPG?

Vehicle Fuel Type?

Regular

View Route

Figure 17: Cost of Gas Printed

We print the cost of gas of your route or routes, based on if you chose “Alternate Route”, below the map.

16

Graphs

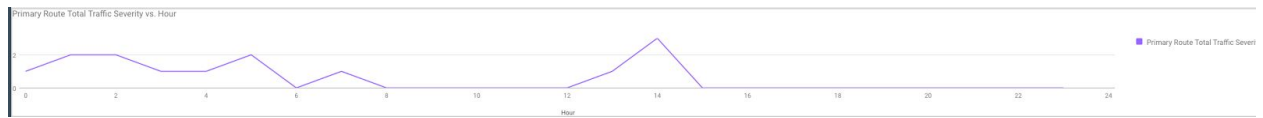


Figure 18: Graph with One Route

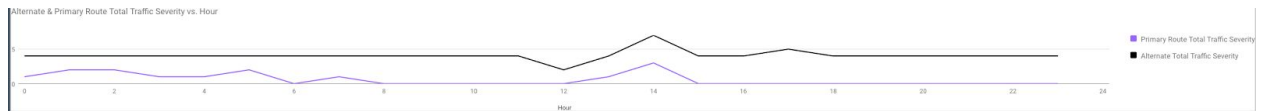


Figure 19: Graph with Alternate Route

If you scroll down on the Route page, you can view graphs regarding the traffic information. What this graph shows is the 24 hours along the x axis and an aggregate of the severities along a route on the y axis (if we have a severity 4 road segment and a severity 2 road segment along a route then a 6 is on the y axis). We show it to compare a primary and alternate route, but a graph can also be shown for just one route when alternate route option is not chosen, such as in Figure 18.

Contact Us

If you have any questions, concerns, or feedback please contact any members of the Onward Team. We would love to hear from you.

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