

FUEL TAX APPLICATION

Final Report

Submitted to
Nevada Department of Transportation

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EXECUTIVE SUMMARY

The web-based fuel tax management system is intended to help decision-makers, data administrators, system users, the public, and other stakeholders to make informed decisions. The system helps provide consistency in data dissemination and reporting and is designed to help in minimizing duplication of work, leading to enhancing the credibility of the information provided by (Nevada Department of Transportation) NDOT to various stakeholders.

NDOT division heads and project managers have full access to utilize the web-based system effectively to help in project funding allocation and budgeting process. This can help maximize productivity and resources. The web-based system is designed to significantly minimize the amount of time needed to enter the data, process the data, and conduct data analyses. Another key benefit of the new automated system is its ability for easy storage and retrieval of information.

The Nevada Legislature can use the system to assess and evaluate the impact of increasing the fuel taxes during a legislative session. Typically, legislators and policy makers request the concerned department to conduct specific analyses and report with results. However, with the advent of this new system the decision makers will be able to quickly see the data and assess the results of a changing scenario, such as increasing the fuel tax revenue by a few cents, to help expedite the decision making process. This tool can be used to assess the impact of declining fuel tax revenues. The map provides the users the ability to see the differential tax structure across the 17 counties of the state. In addition, users can now see the change and impact of fuel tax indexing in Washoe and Clark Counties.

The automated fuel tax management is a robust mechanism to help the NDOT executive management to determine the overall system needs against the available funding options for

varying funding scenarios. The tool can be used to assess the impact of proposed transportation legislations at the state and federal levels, and will empower the executive management to recommend fact-based strategies to the Board of Directors and the stakeholders.

In summary, the final product incorporates leads to a web-based system that includes the following:

- Revenue analysis by county.
- Revenue analysis by year.
- Revenue analysis by source and type.
- Visualization and charts for various types of fuel tax revenue.
- Visualization and charts for gallons of fuel.
- Custom scenarios for conducting revenue versus needs analyses.
- Custom scenarios to see the impact of decline in revenue at various decline rates.
- Custom scenarios to see the impact of growth in revenue at various increasing rates.
- Distribution of revenue between North, South, and the Rural Nevada.
- Impact of fuel tax indexing.
- Impact of increasing the fuel tax rate by one cent or more.

CHAPTER 1

PROJECT OVERVIEW

INTRODUCTION

Fuel tax revenue has been the major source of revenue for the Nevada Department of Transportation (NDOT) for decades and it is expected to continue to be a reasonable source in the future. The fuel tax revenue has two components- state fuel taxes that go to the State Highway Fund, and the federal fuel taxes that go to the Federal Highway Trust Fund. NDOT's federal tax reimbursement is based on the data provided by NDOT to the Federal Highway Administration (FHWA). Hence, it is important to provide accurate data to FHWA for full reimbursement of NDOT costs.

NDOT receives fuel tax data from various agencies, such as the Regional Transportation Commissions (Metropolitan Planning Organizations), several sections of the Department of Motor Vehicles (DMV), and other sources such as the International Fuel Tax Agreement (IFTA) clearinghouse. All this valuable and sensitive data is provided in various formats and is being collected and stored in various formats accordingly. Currently, the NDOT fuel tax manager does most of the data analyses. The process is cumbersome and prone to potential errors. The current process is completely dependent on the staff managing the fuel tax information. If an employee leaves the agency, the fuel tax data reporting would be severely hampered and may cause significant delay in processing the data and receiving timely reimbursements to pay existing obligations, potentially causing a severe financial burden on the already limited resources of the department.

In order to provide an automated system for the fuel tax data management, the Nevada Department of Transportation retained the services of the UNLV team to implement a sophisticated automated system to provide results in simple tabular and visual formats to the system users, the public, and decision makers.

PROJECT APPROACH

As part of the major tasks of the project, the UNLV team collected existing historical gallons of fuel and fuel tax data from NDOT. They conducted data analyses to understand the intricacies of the data, conducted data cleaning to remove duplicate and redundant records, provided mapping and visualization of the data, and implemented a sophisticated user interface to enable NDOT fuel tax project manager, executive staff, and the public and other agencies to view and analyze the data to help in fact-based decision making.

For the implementation of the automated fuel tax system, the UNLV team followed the typical Software Development Life Cycle process as listed below,

- Requirement Analysis
- Functional Analysis
- Test Case
- Coding
- Testing
- Integration
- Implementation

Regular meetings were held with the Performance Analysis Division Chief and Dale Lindsey from NDOT to seek guidance and review the work progress. A series of work sessions were conducted to discuss the implementation protocols and refine the process as needed. The UNLV team also visited NDOT offices to provide demonstration of the automated fuel tax system to the users and get feedback.

The UNLV team analyzed the following key data.

- State Gasoline Tax Data
- State Special Fuel Tax Data
- State Gasoline Gallons
- State Special Fuel Gallons
- Federal Gasoline Tax Data
- Federal Special Fuel Tax Data
- Federal Gasoline Gallons
- Federal Special Fuel Gallons

In addition, the system provides the fuel tax data user the ability to upload the data automatically received from the DMV into the system for reporting to the FHWA for reimbursement. This step will save the user significant amount of time for each time the report is uploaded and submitted to FHWA.

This final report includes:

- System installation,
- Users' manual,
- System description, and
- System documentation.

Detailed descriptions of the above documents are provided in the following chapters of this report.

CHAPTER 2

FUEL TAX INSTALLATION

OVERVIEW

The Fuel Tax (FT) web application installation tested and conducted on Windows 2008 R2 × 64 server, and MS SQL (Microsoft Structure Query Language) server 2012/ 2010, vs 2013. An overview of steps to install the Fuel Tax web application are as follows:

1. Import database to the MS SQL Server
2. Import Web Application to the IIS (Internet Information Service) server
3. Edit connection strings inside web.config file to connect Web Application to databases
4. Edit permissions for IIS User
5. Edit permission to allow website's access to Excel Object Library

Step 1: Database import to MS SQL 2008

The import uses two .sql (structured query language) files to generate each database: ftusers.sql and ftapp.sql. The ftusers.sql file is used for website registration and authorization. The ftapp.sql is used to maintain the data associated with actual FT application. These two scripts are run on 2008 MS SQL server to generate the database or data. However, the prerequisite to generate data is to create the database with the same name as the .sql filename. To do so, create the database with same name, then click on ‘open file’. Open the .sql file (ftusers.sql) and select the database. Click ‘execute’. Verify that the sql script executes without errors. Step 1 should be repeated for the second file, ftapp.sql. See Figure 1.

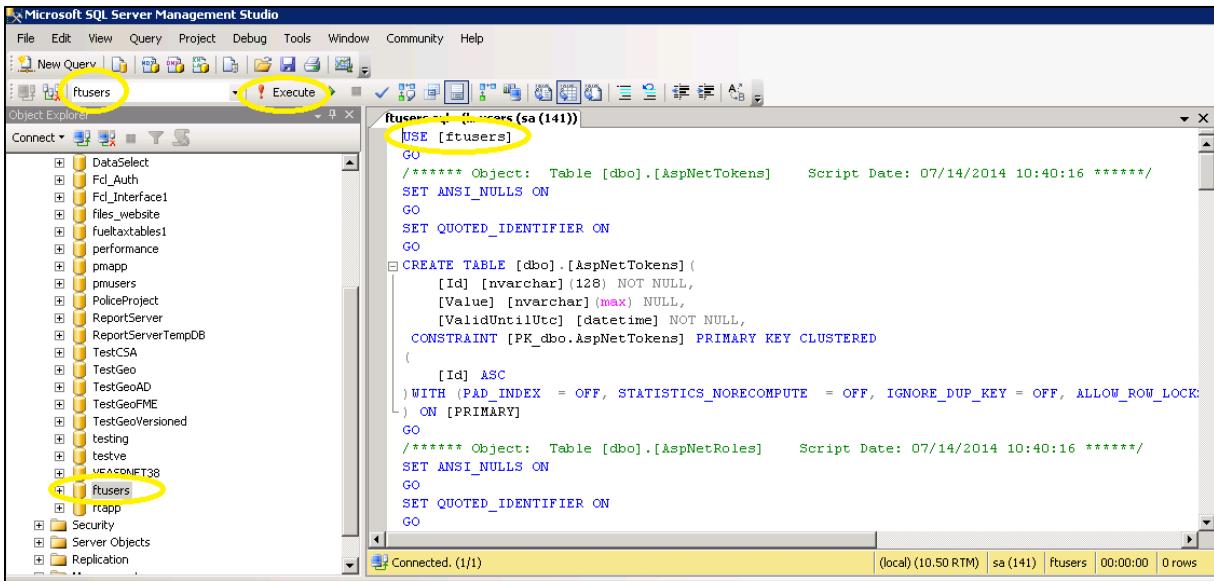


FIGURE 1 Import database Microsoft structured query language 2008.

To change access rights for the database, create a new username and password (or use an existing one) for the two databases. See Figure 2 for an example using username: NDOTAdmin, and password: NDOTpassword to access the database. Expand the database in the object folder (e.g. vusers), expand “Security” and right-click on “Users”. Select “New User”. Lastly, data reader and data writer properties are selected. Repeat this process for the veapp database.

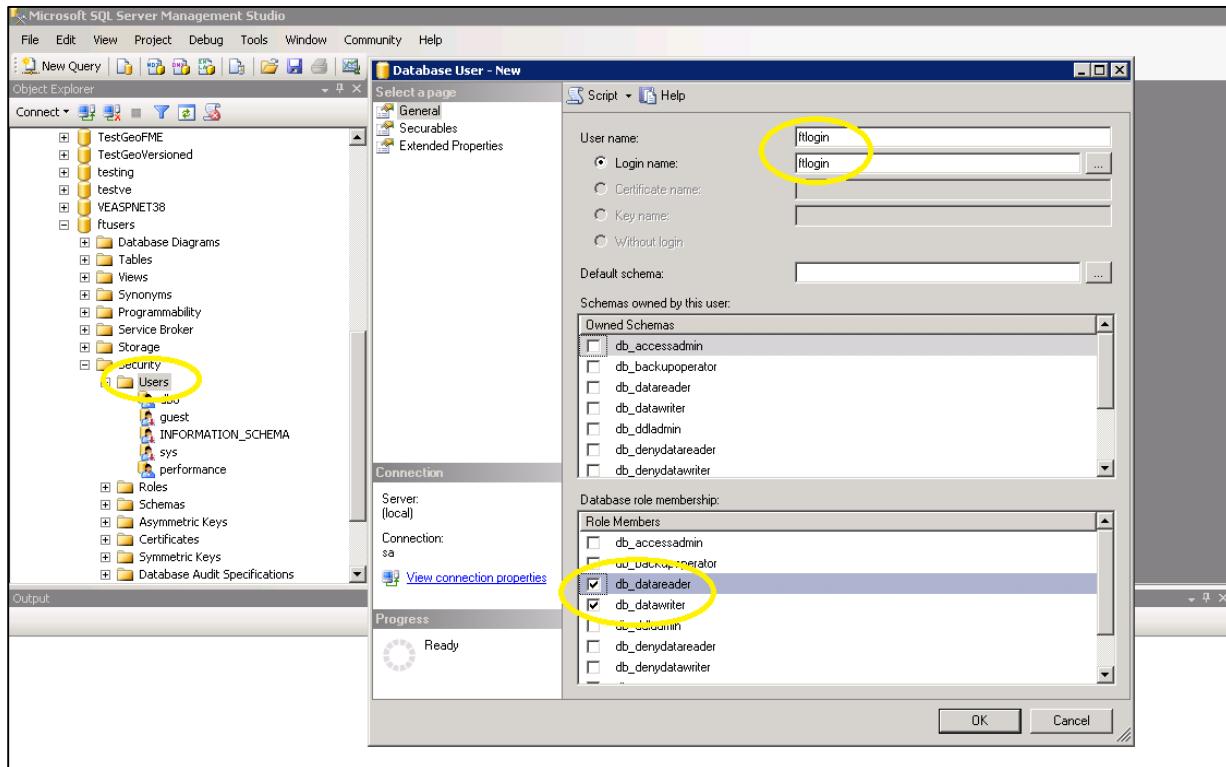


FIGURE 2 Import web application to the Internet Information Service (IIS) server.

Step 2: Import Web Application to the IIS server

Use the following steps to import the FuelTax.zip web deploy package into IIS default website pool:

1. Open the IIS Manager by clicking Start > Run and typing “**inetmgr**”.
2. In IIS Manager, expand the Server node and Sites node. Select the Default Web Site.
NOTE: install the application in a different folder than the “Default web site”. It is installed in the Default Web Site pool in the test environment.
3. In the right-hand Actions pane, click the “**Import Application...**” link to launch the packaging wizard.
4. Select the package *FuelTax.zip*.

5. In the ‘Install an Application Package’ dialog, all the application files are shown.
6. On the Parameters page, enter a new application name if desired and enter a SQL connection string (the connection string can be entered afterwards as described below).
7. Click Next to install the package.
8. The Summary page will provide a high-level overview of some items that were installed from the package. The Details tab will specify the exact addition.

After these steps are conducted, a pop-up screen will show that the application requires APS.NET v4.0 Application Pool. If prompted to change to ASP.NET v4.0, click ‘YES’.

Step 3: Edit connection strings inside web.config file to connect Web Application to databases.

This step describes editing connection strings to connect Web Application to database at backend. It is specific to server/database and it could be a remote server or local. Deployment process was demonstrated using the local server with user: *velogin* and password: *Passw0rd*.

The connection strings can be edited using the following two options:

1. Edit directly in IIS explorer by clicking on the website. Choose option for CONNECTION STRINGS.
2. Open the web.config file in the website root folder, and replace the “`<connectionStrings>`” tags using below code. The values that are in bold are adapted to this user (Catalog, User ID and Password). For example, the database created in the earlier steps of ftusers and ftapp are used. This is the resulting connection string in the user web.config file.

```
<connectionStrings>

    <add name="DefaultConnection" connectionString="Data Source=(local);Initial Catalog=ftusers;Integrated Security=False;UserId=ftlogin;Password=Passw0rd;MultipleActiveResultSets=True"
providerName="System.Data.SqlClient" />

    <add name="fueltaxEntities"
connectionString="metadata=res://*/Models.fueltaxDB.csdl|res://*/Models.fueltaxDB.ssdl|res://*/Mo
dels.fueltaxDB.msl;provider=System.Data.SqlClient;provider connection string="Data
Source=(local);Initial Catalog=ftapp;Integrated Security=False;UserId=ftlogin;Password=Passw0rd;MultipleActiveResultSets=True"
providerName="System.Data.EntityClient" />

</connectionStrings>

<!--<connectionStrings>
```

Step 4: Edit permissions for IIS User

In IIS expand Fuel Tax website, and right click on ‘Reports’ folder and select ‘Edit Permissions’, in the new window select “Security” tab and ‘Edit’. Select ‘ASP.NET v4.0’ and ‘Read and Write’ checkboxes and then click ‘Apply’ button, as shown in Figure 3.

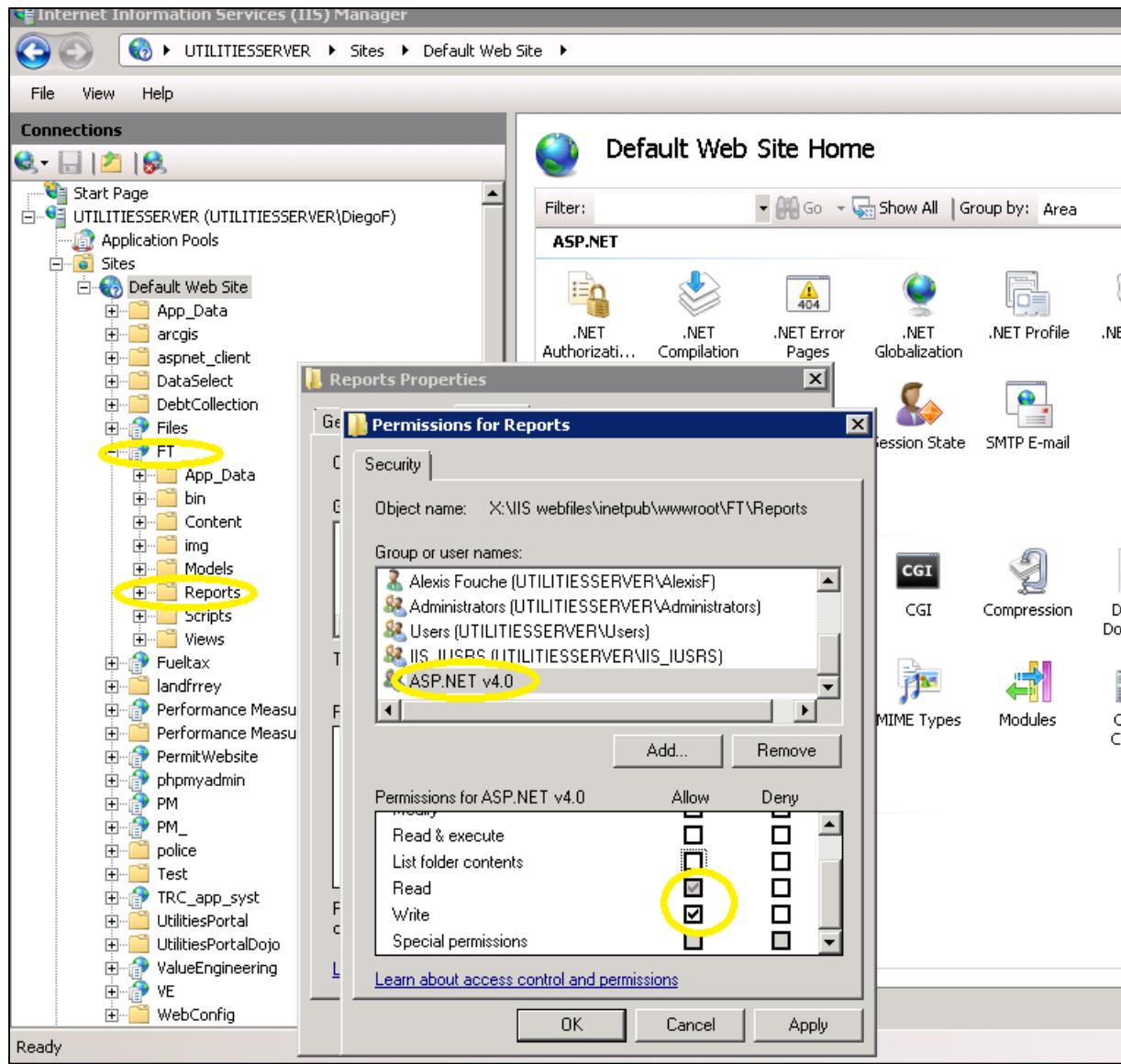


FIGURE 3 Edit permission for internet information service (IIS) user.

Step 5: Edit permission to allow website's access to Excel Object Library

The Fueltax app uses Microsoft Excel 15.0 Object Library to manipulate excel sheets. The prerequisite to use Object Library is that MS Office 2010 or 2013 must be installed and registered on the server. It includes the packages for the COM objects used in the Visual Studio 2013 development.

The following steps as shown in Figure 4 to be carried out to access the Excel Object Library,

1. modify access rights to allow iis apppool\asp.net v4.0 users (your ISS app user may be named differently on your IIS)
2. In your start>Search type: DCOMCNFG then enter, (or search for ‘Component Services’). Then right click on the My Computer and select properties.
3. Choose the COM Securities tab.
4. In Access Permissions, click ‘Edit Defaults’, add Network Service to it and give it ‘Allow local access’ permission. Do the same for <Machine name>\Users.
5. In launch and Activation Permissions, click ‘Edit Defaults’ and add Network Service to it and give it ‘Local launch’ and ‘Local Activation’ permission. Do the same for <Machine name>\Users.

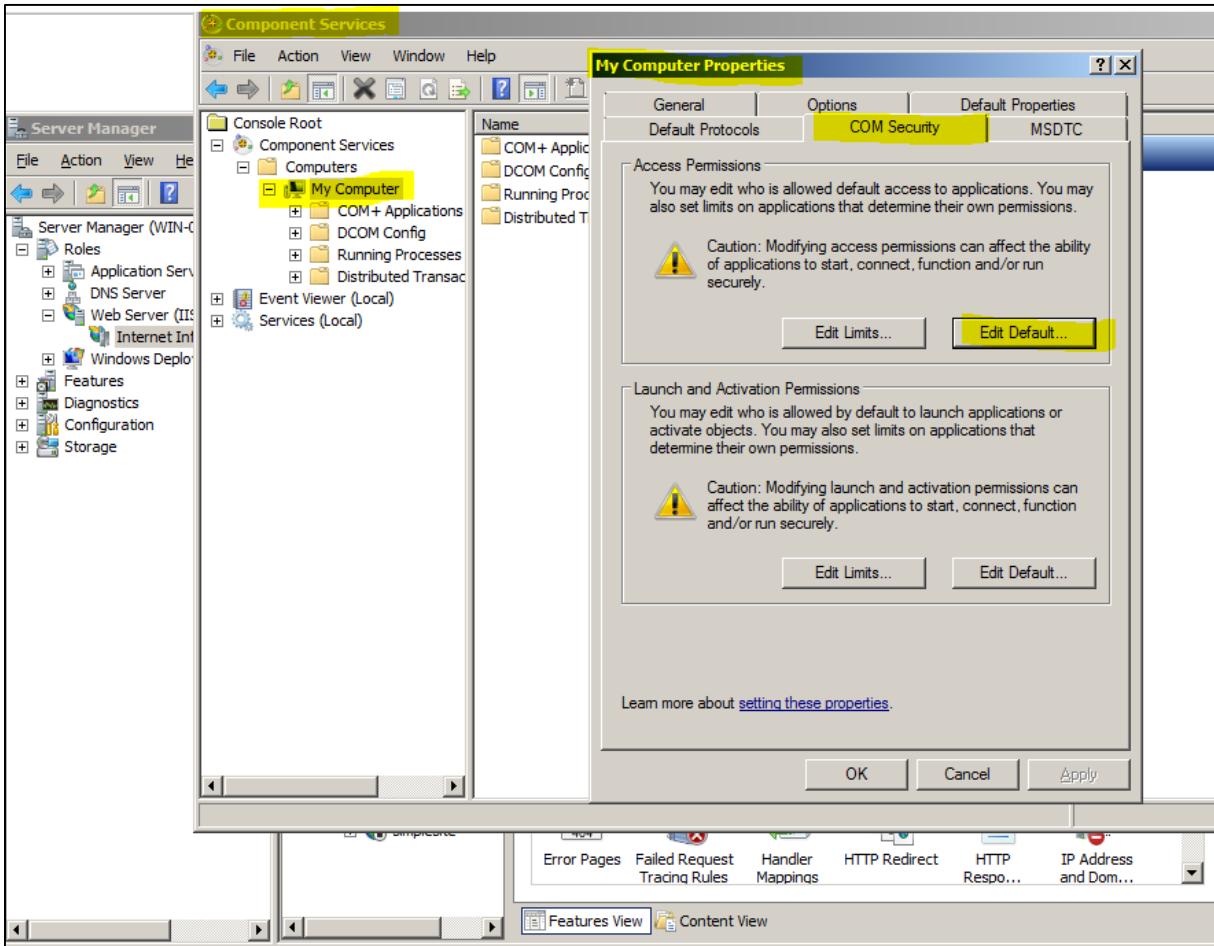


FIGURE 4 Edit permission to access Excel Object Library.

ADDITIONAL INFORMATION

The Fuel Tax site uses port 80 and allows only logged in users to access features that can make changes to its database or manipulate files. The default login is username: ndot, password: Testing123+. More users can be added once logged in to the website. The users authentication is done through the default Microsoft authentication methods in ASP.Net and Visual Studio. All other users that are not logged in can only view charts and tables on the site but will not be able to access any files or make changes to database. When trying to run Excel automation via IIS, the following error can be encountered with the following link.

<http://social.msdn.microsoft.com/Forums/en-US/innovateonoffice/thread/b81a3c4e-62db-488b-af06-44421818ef91>

The resolution for this error is:

1. Create directory ‘C:\Windows\SysWOW64\config\systemprofile\Desktop’ (for 64 bit Windows)
or ‘C:\Windows\System32\config\systemprofile\Desktop’ (for 32 bit Windows)
2. Set **Full control** permissions for directory **Desktop** (for example in Win7 & IIS 7 &
DefaultAppPool set permissions for user
‘IIS AppPool\DefaultAppPool’)

CHAPTER 3

FUEL TAX USER GUIDE

OVERVIEW

The Fuel Tax Application is a Data Collaboration Tool designed to allow users to view and print custom charts displaying relevant data, and registered users may upload excel spreadsheets to update the current data. The back-end is mostly supported by an MS SQL (Microsoft Structured Query Language) database, which contains the historical reports and supporting data. The front-end UI (User Interface) is a web-based application developed with ASP.NET and Visual Basic. Figure 2 shows the home page of the fuel tax website. It allows the user(s) to either create or edit the reports for their division. The Fuel Tax application will be deployed as a web-based process on Windows Server 2008. The application was developed using the technologies such as ASP.NET, MVC, Visual Basic, MS SQL, HTML/CSS, JavaScript, and jQuery.

There are two types of users who can use this fuel tax application. They are:

1. The registered user, who can only view, create, edit, or delete data.
2. The general public, who can only see complete reports.

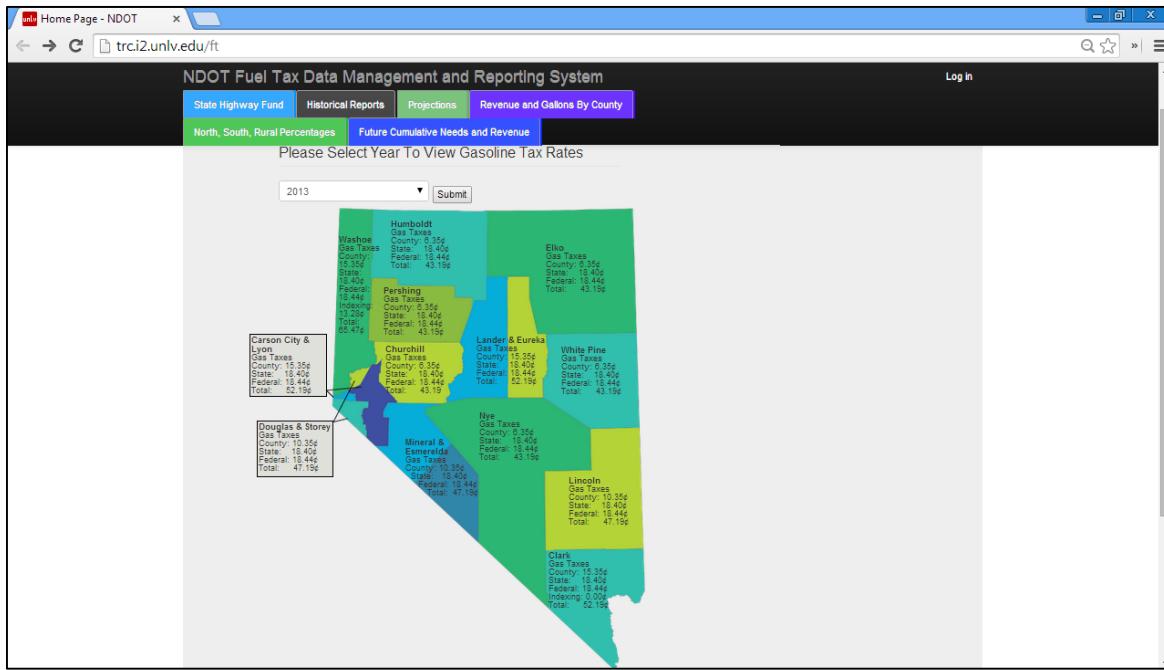


FIGURE 1 Home screen of fuel tax website.

Figure 1 shows the home screen when the website is entered. Figure 2 shows the different gas rates by year and county.

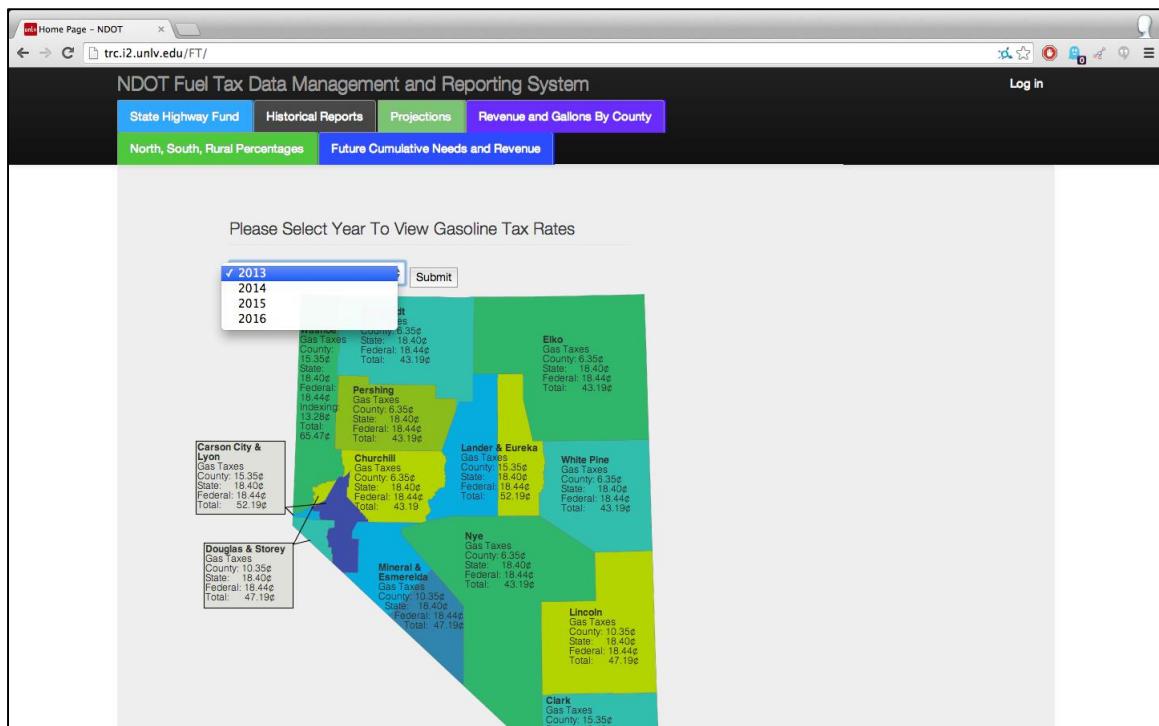


FIGURE 2 Home screen of different gas rates by year and county.

The fuel tax data of each section can be viewed by clicking any of the menu tabs as shown in Figure 3.

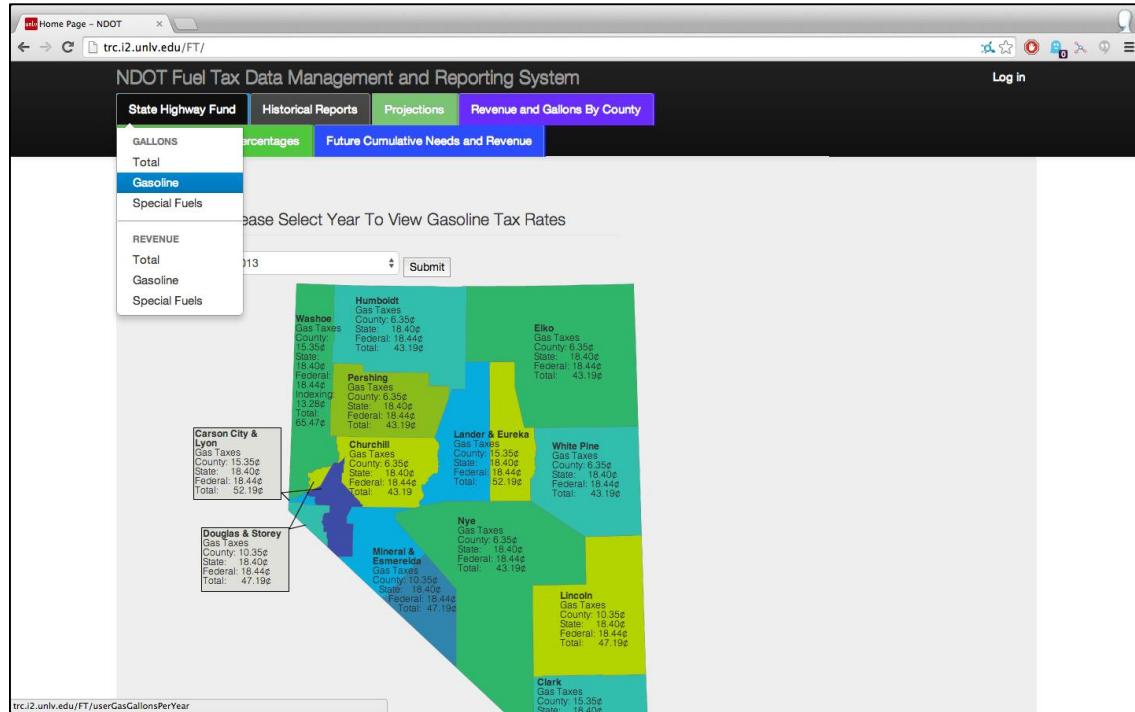


FIGURE 3 Data viewing with menu tabs in the website.

The gasoline consumption for particular years can be viewed by selecting the ‘from’ and ‘to’ year as shown in the Figure 4

The screenshot shows a web browser window with the URL trc.i2.unlv.edu/FT/userGasGallonsPerYear. The page title is "NDOT Fuel Tax Data Management and Reporting System". The top navigation bar includes links for "State Highway Fund", "Historical Reports", "Projections", "Revenue and Gallons By County", "North, South, Rural Percentages", and "Future Cumulative Needs and Revenue". A "Log in" link is also present. The main content area is titled "Gasoline Gallons Per Year" and displays a form for selecting years. It includes two dropdown menus: "From Year" set to 1998 and "To Year" set to 2008, and a "Display" button. At the bottom left, there is a copyright notice: "© 2014 - Fuel Tax".

FIGURE 4 Selection of years for data about gallons of gasoline.

The username and password for fuel tax can be created by registering in the website as shown in Figure 5.

Register

Create a new account.

User name

Password

Confirm password

© 2014 - Fuel Tax

FIGURE 5 Creating new account.

Once new account is created, the reports can be uploaded to the website by choosing ‘Add File to Database’ caption as shown in the Figure 6.

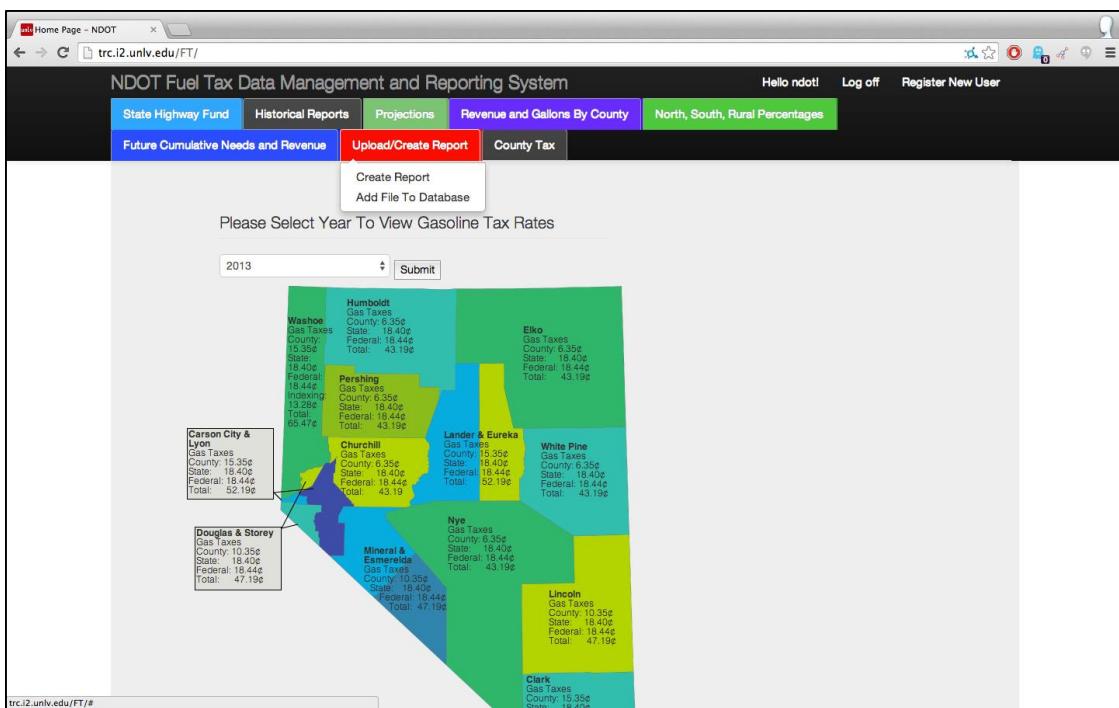


FIGURE 6 Uploading new reports to the website.

To upload the report without any errors, Figure 7 shows all the information required to be entered in the website.

Select the file to upload data into the database

Upload DMV Statistical and FHWA 551M Reports Here

Please A Select Report Type

DMV Statistical Reports
 FHWA 551M Reports
 Please Select Year

2014

Please Select A Month

January

Data File: Choose file No file chosen

Upload Highway Fund Needs and Revenue Here

Please Select A File To Upload

Data File: Choose file No file chosen

Please use only the following formats:

Sample DMV Statistical Report
Sample FHWA 551M Report
Sample Source Data for FHWA 551M Report
Sample Estimated Highway Fund Needs and Rev

© 2014 - Fuel Tax

FIGURE 7 Information required to upload a report.

Figure 8 shows the page, which is used to create a new report.

The screenshot shows a web browser window for the "NDOT Fuel Tax Data Management and Reporting System" at the URL trc.l2.unlv.edu/FT/userCreateReport. The page title is "Create A Fuel tax Report". The top navigation bar includes links for "Hello ndot!", "Log off", and "Register New User". Below the navigation is a horizontal menu bar with several tabs: "State Highway Fund" (selected), "Historical Reports", "Projections", "Revenue and Gallons By County", "North, South, Rural Percentages", "Future Cumulative Needs and Revenue", "Upload/Create Report" (selected), and "County Tax". A main instruction message reads: "Use this form to create a report on the monthly consumption of gasoline. Select a Fiscal Year file, a Gasgal file, then click "Create Report". Below this, there are dropdown menus for "Please Select Year" (set to 2014) and "Please Select A Month" (set to January). There are also two file selection fields: "Fiscal Year File:" with a "Choose File" button and "No file chosen", and "Gasgal File:" with a "Choose File" button and "No file chosen". At the bottom right is a "Create Report" button. The footer contains the copyright notice "© 2014 - Fuel Tax".

FIGURE 8 Creating new report.

CHAPTER 4

SYSTEM DESCRIPTION

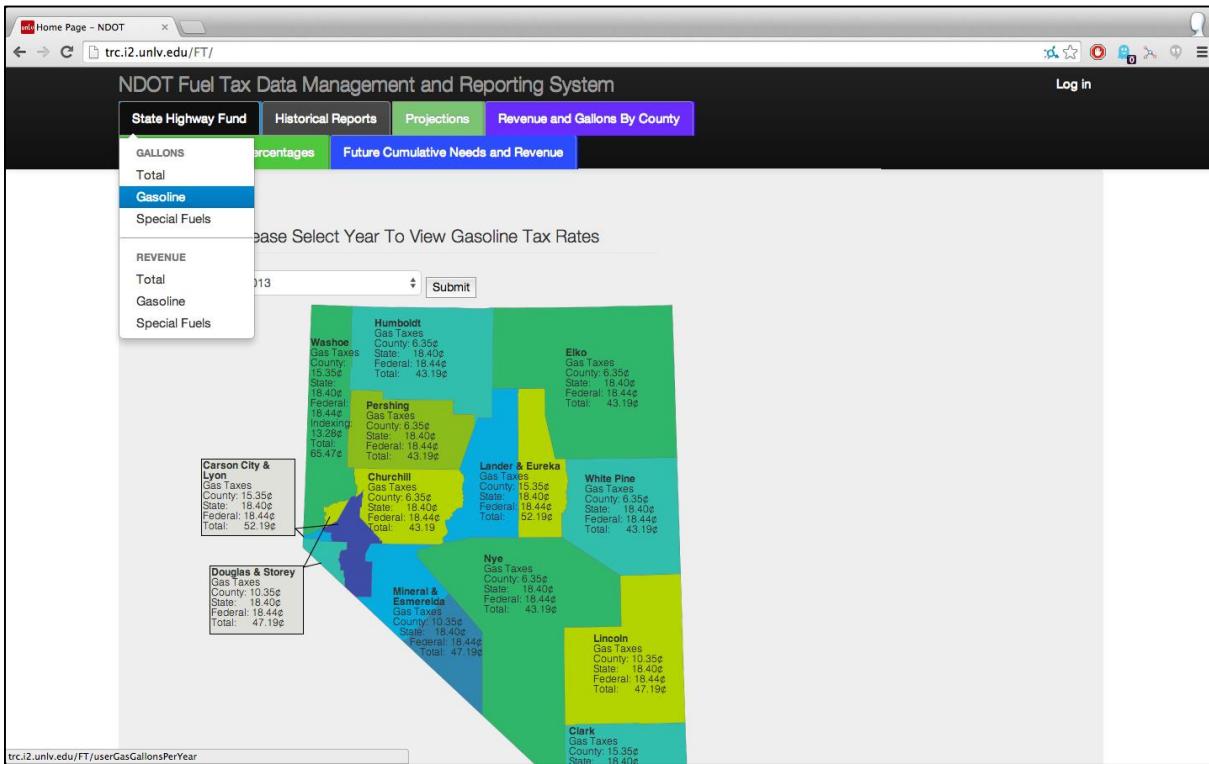


FIGURE 2 State highway fund of total gallons of gasoline selection.

NDOT Fuel Tax Data Management and Reporting System

[Log In](#)

State Highway Fund Historical Reports Projections Revenue and Gallons By County

North, South, Rural Percentages Future Cumulative Needs and Revenue

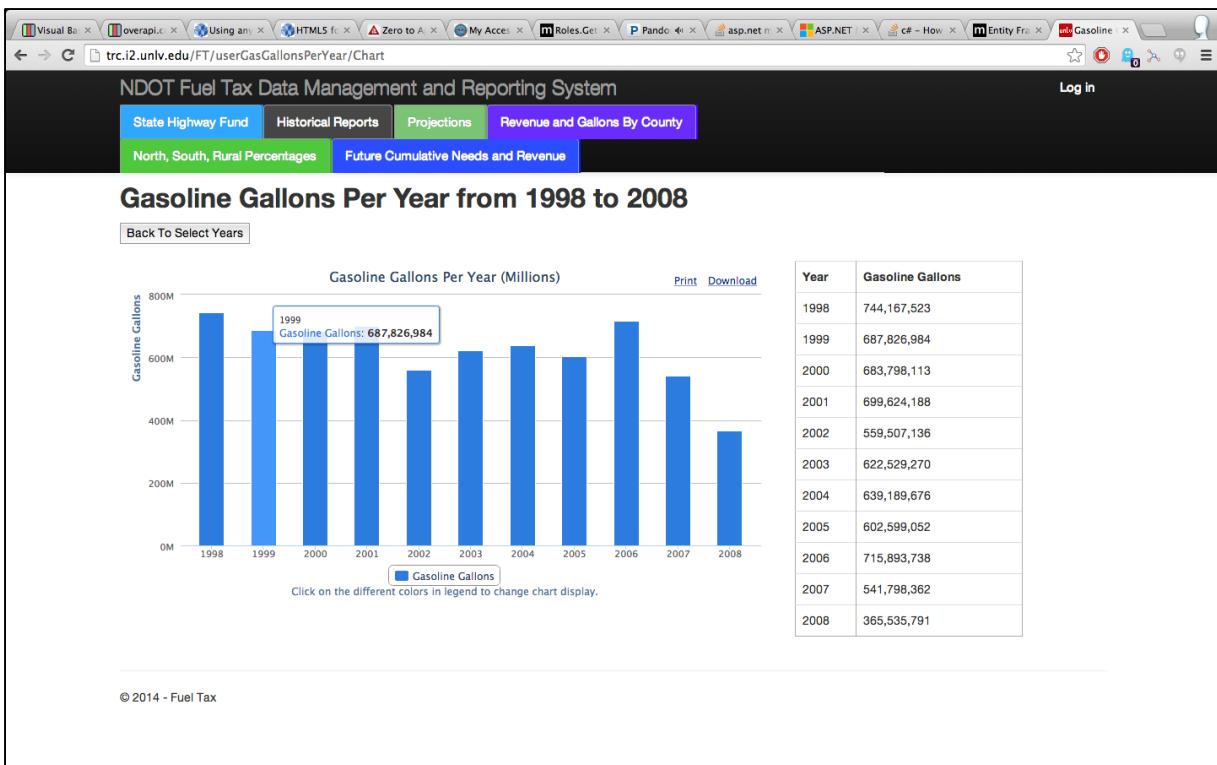
Gasoline Gallons Per Year

Please Select Years

From Year: 1998

To Year: 2008

© 2014 - Fuel Tax

FIGURE 3 Selection of year.**FIGURE 4** Gasoline consumption for years from 1998 to 2008.

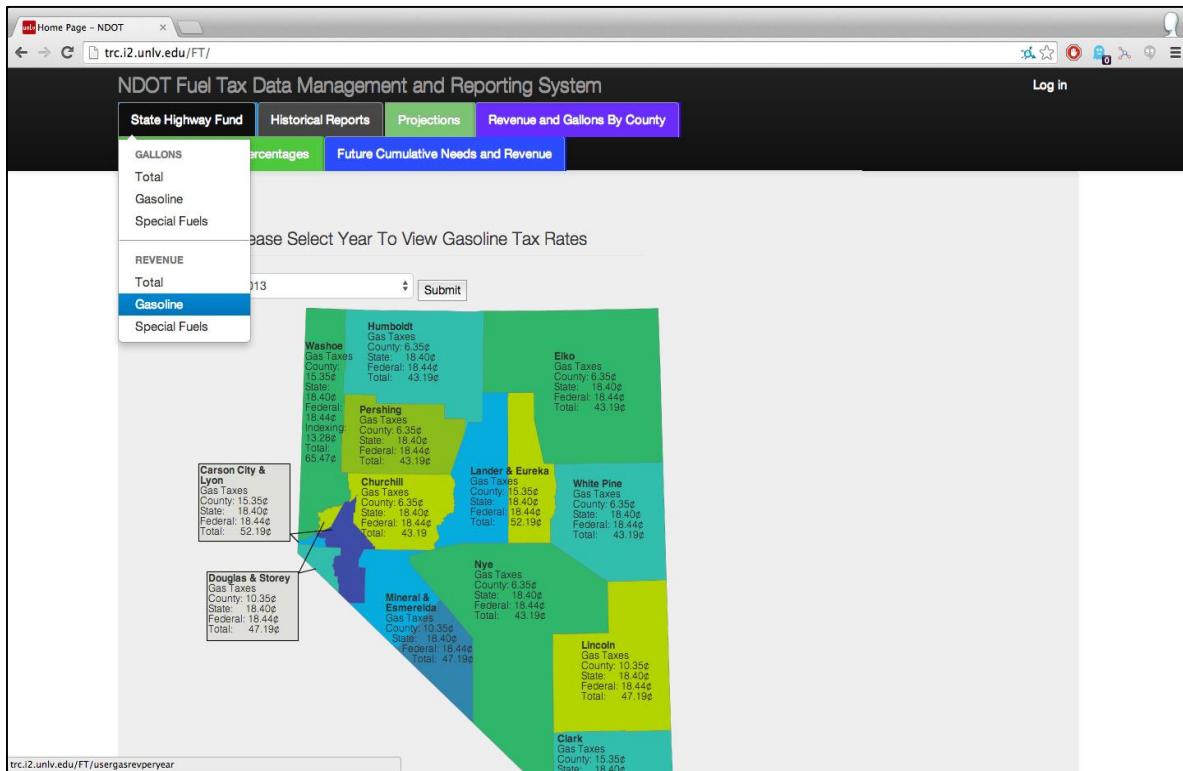


FIGURE 5 State highway fund for revenue of gasoline selection.

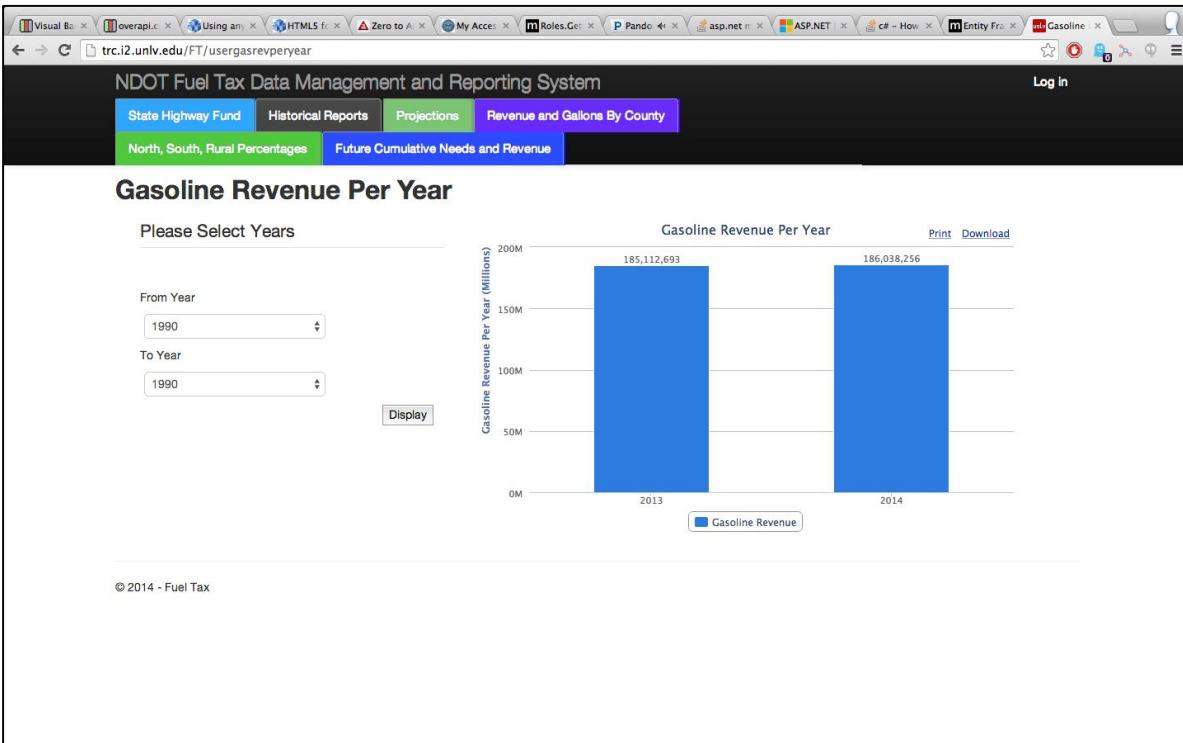


FIGURE 6 Graphical representation of gasoline revenue for the year 1990.

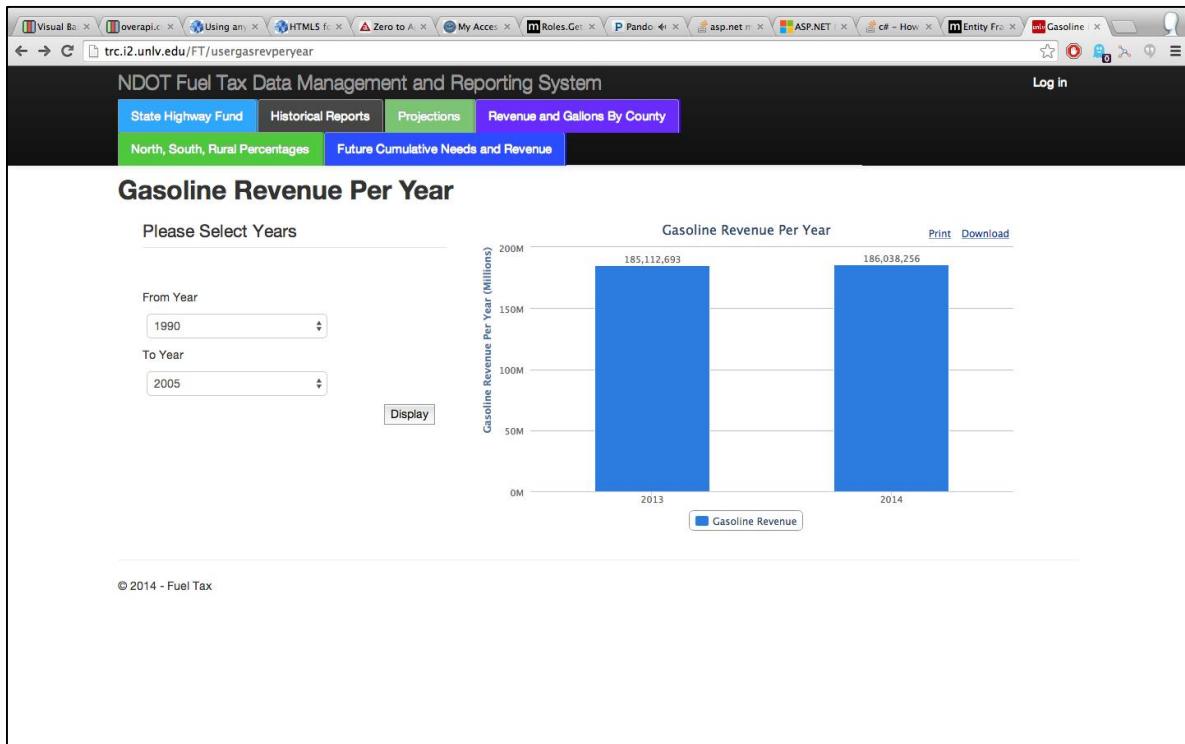


FIGURE 7 Graphical representation of gasoline revenue from year 1990 to 2005.



FIGURE 8 Detailed graphical representation of gasoline revenue for each year from 1990 to 2005.

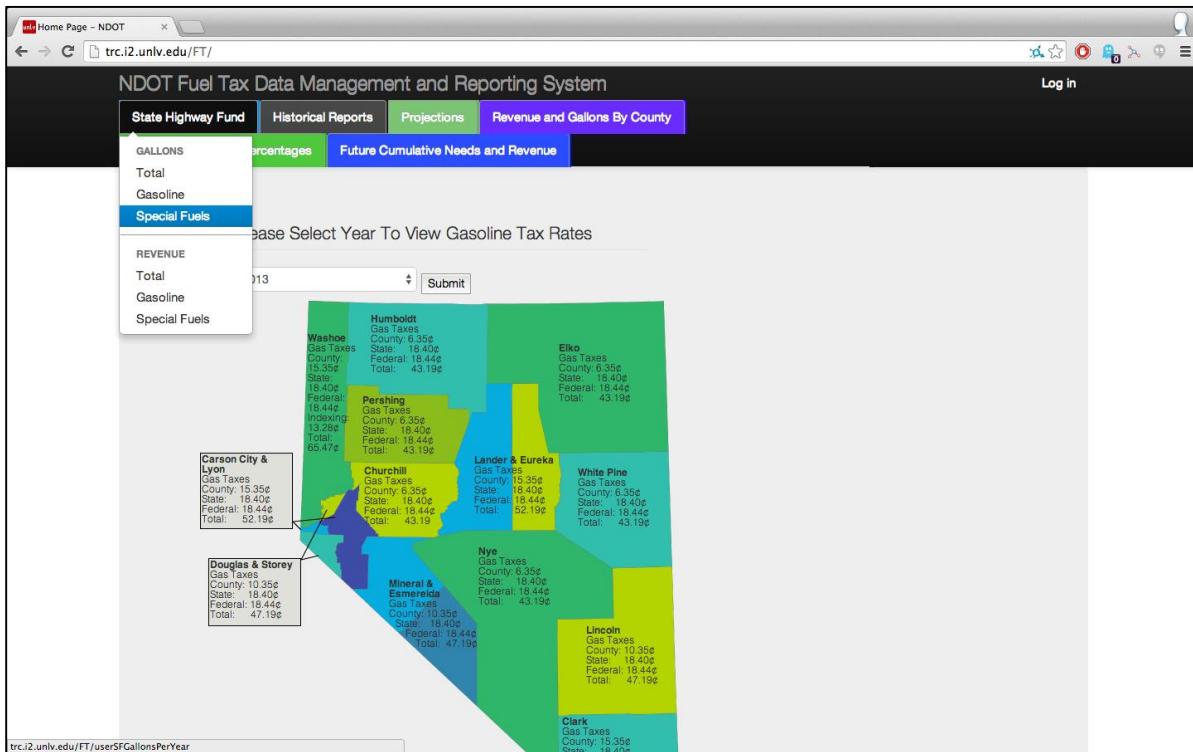


FIGURE 9 State highway fund for gallons of special fuels.

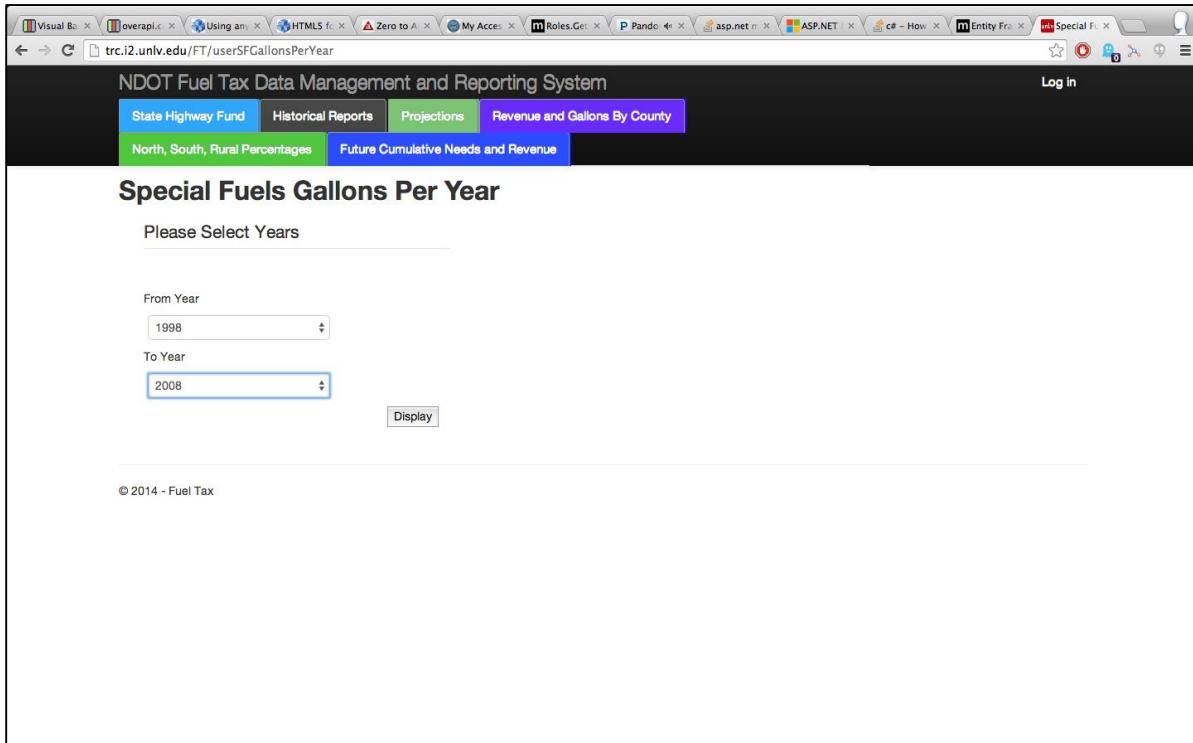


FIGURE 10 Special fuel gallons from year 1998 to 2008 selection.

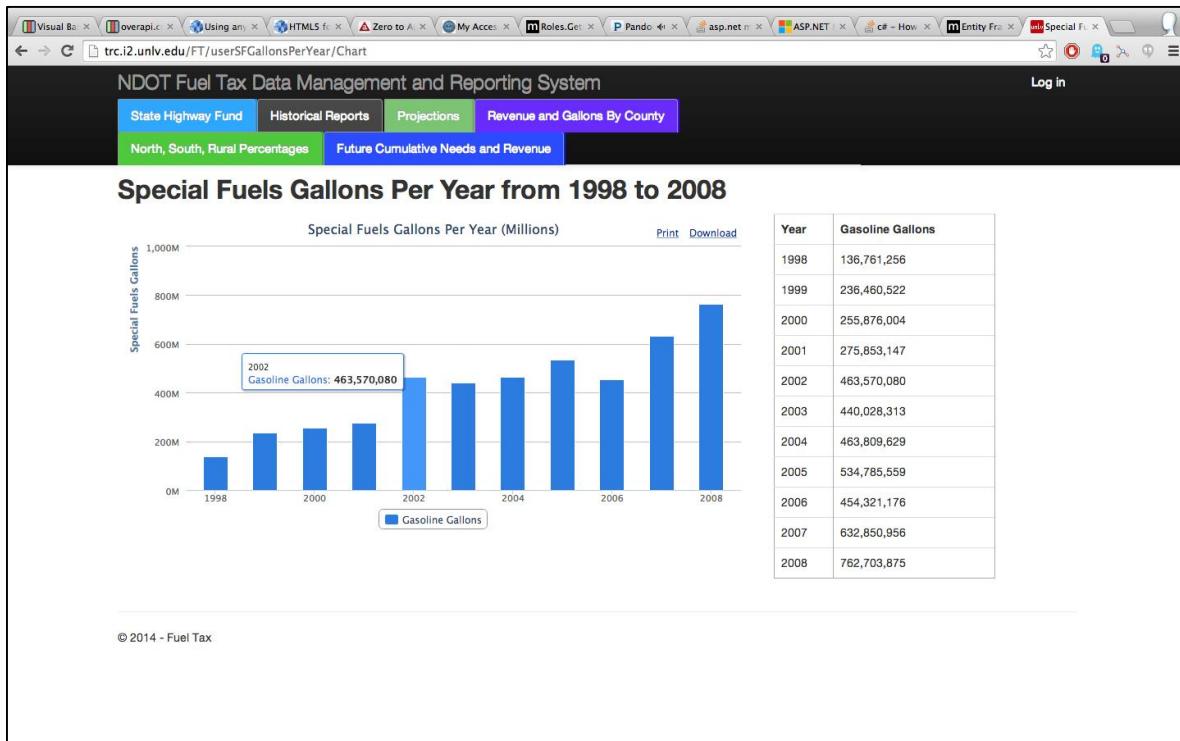


FIGURE 11 Graphical representation of special fuel gallons per year from 1998 to 2008.

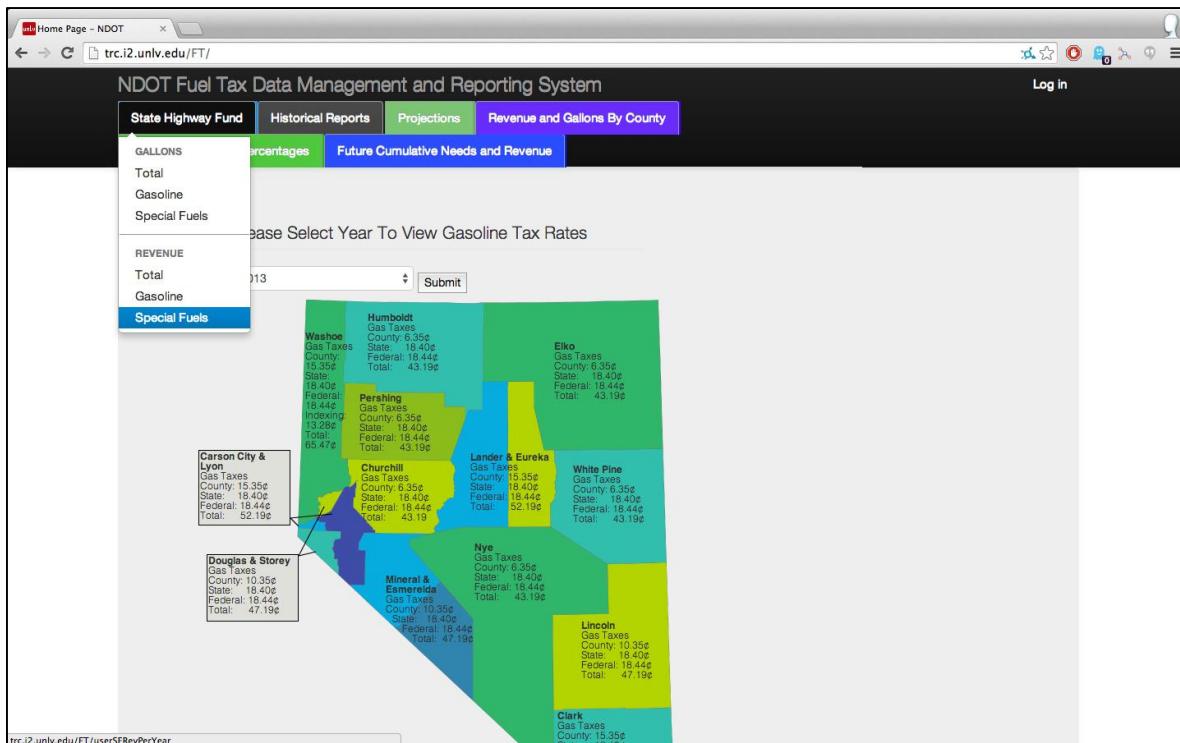


FIGURE 12 State highway fund for revenue of special fuel.

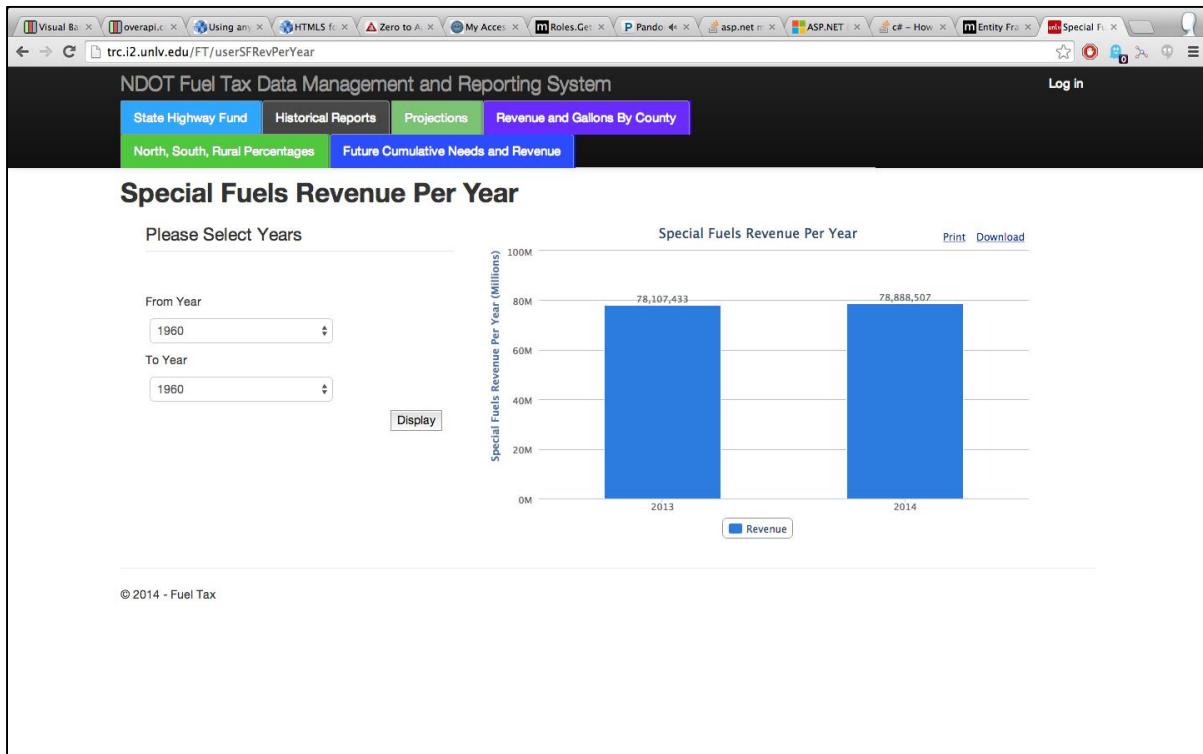


FIGURE 13 Graphical representation of special fuels revenue per year for 1960.

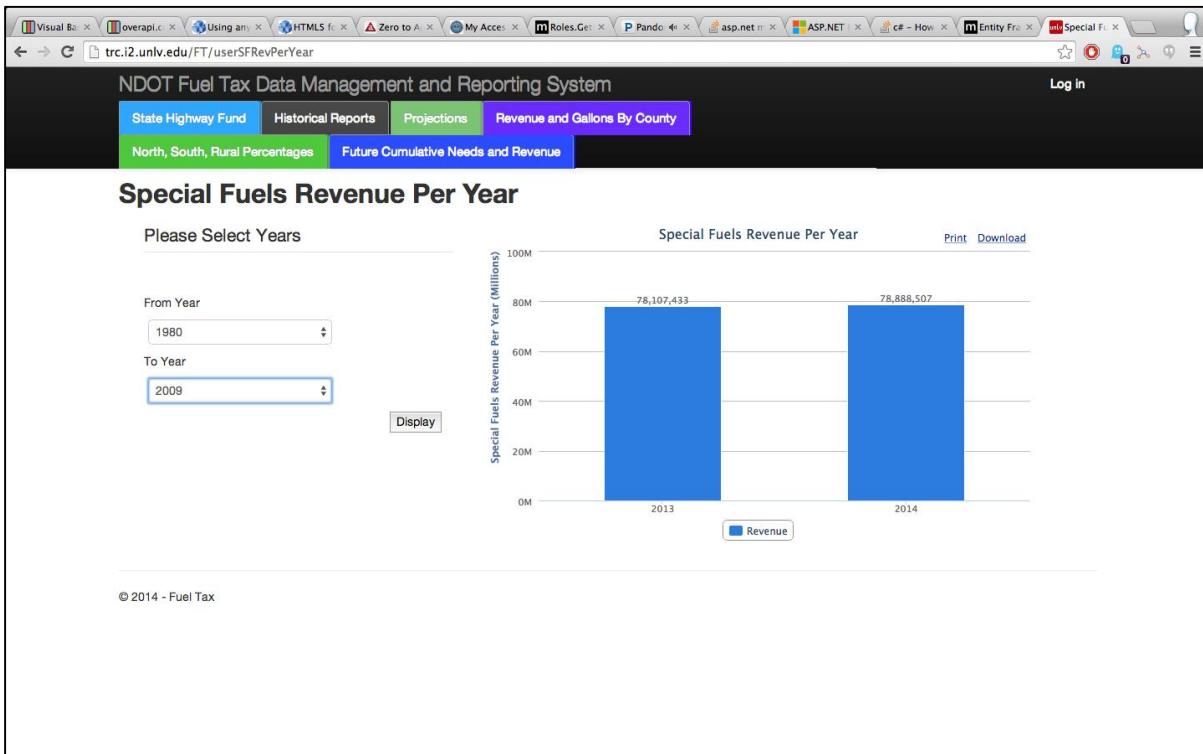


FIGURE 14 Graphical representation of special fuels revenue from year 1980 to 2009.



FIGURE 15 Detailed graphical representation of special fuels revenue per year from 1980 to 2009.

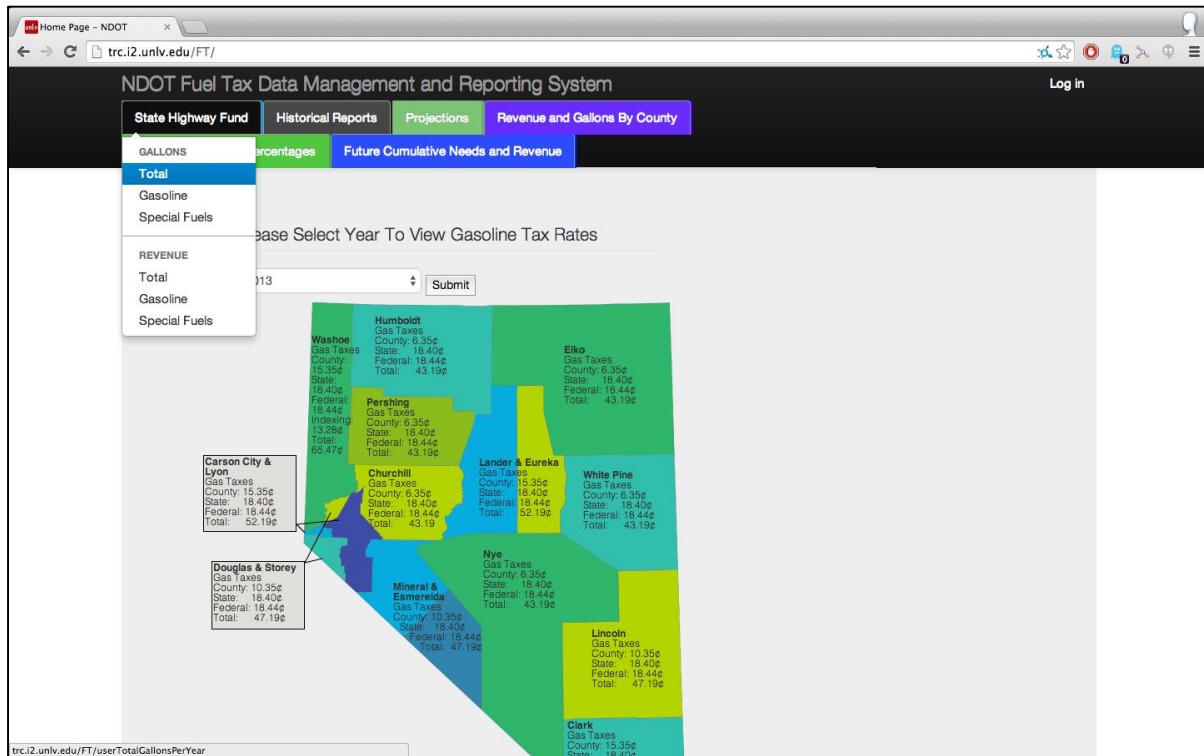


FIGURE 16 Total gallons of fuels.

NDOT Fuel Tax Data Management and Reporting System

[Log In](#)

State Highway Fund Historical Reports Projections Revenue and Gallons By County

North, South, Rural Percentages Future Cumulative Needs and Revenue

Total Gallons Per Year

Please Select Years

From Year: 1998

To Year: 2008

© 2014 - Fuel Tax

FIGURE 17 Selection of total gallons of fuels for years from 1998 to 2008.



FIGURE 18 Graphical representation of total gallons of fuels from year 1998 to 2008.

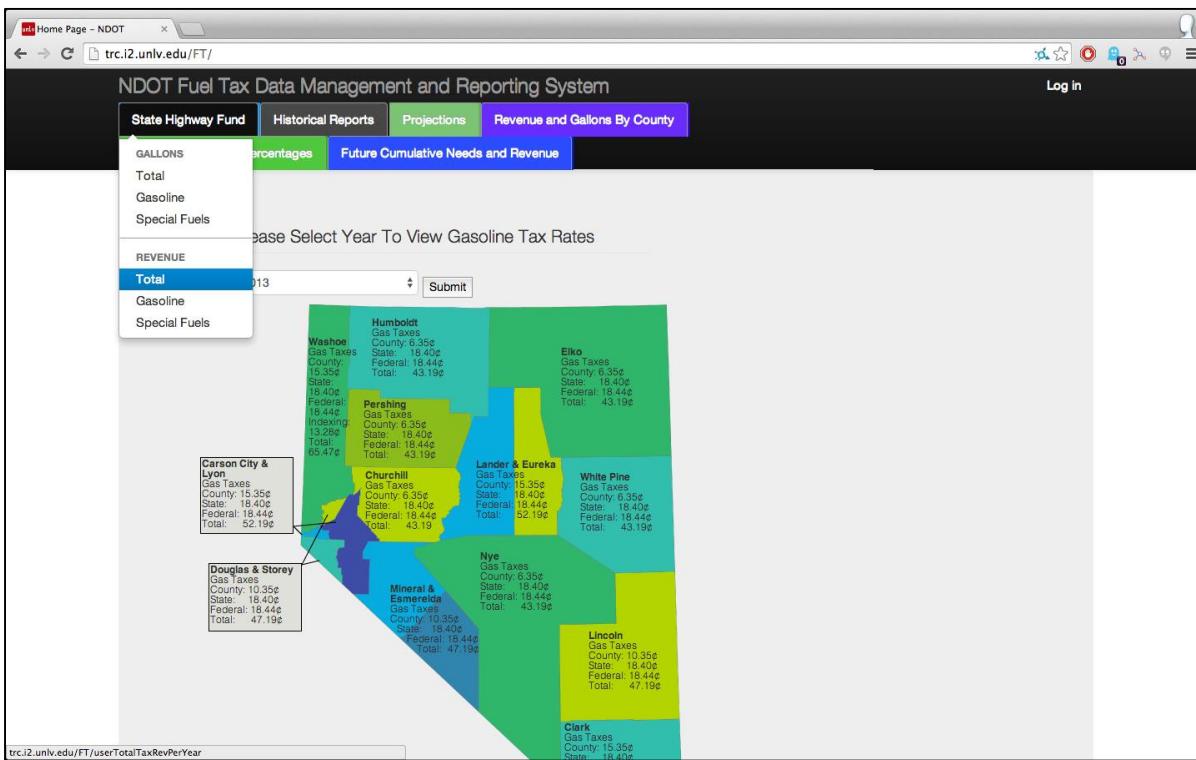


FIGURE 19 Total revenue of fuels.



FIGURE 20 Selection of total revenue of fuels from year 1998 to 2010.

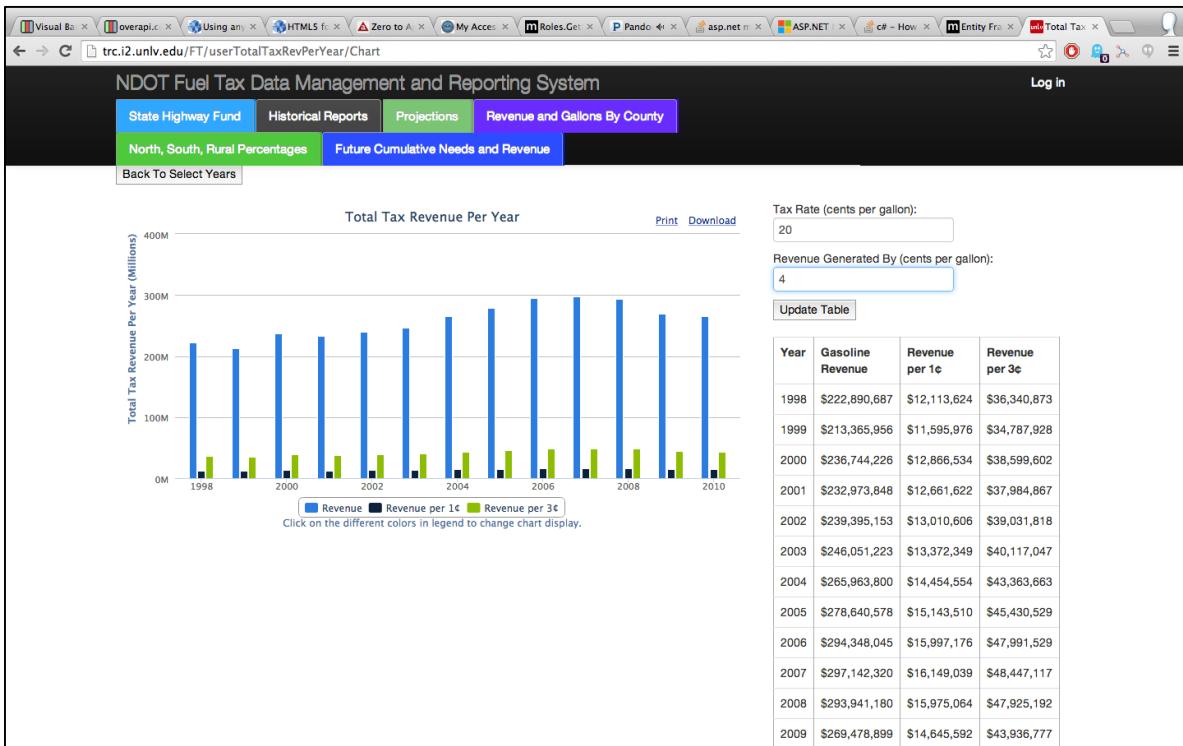


FIGURE 21 Graphical representation of total revenue of fuels per year from 1998 to 2010.

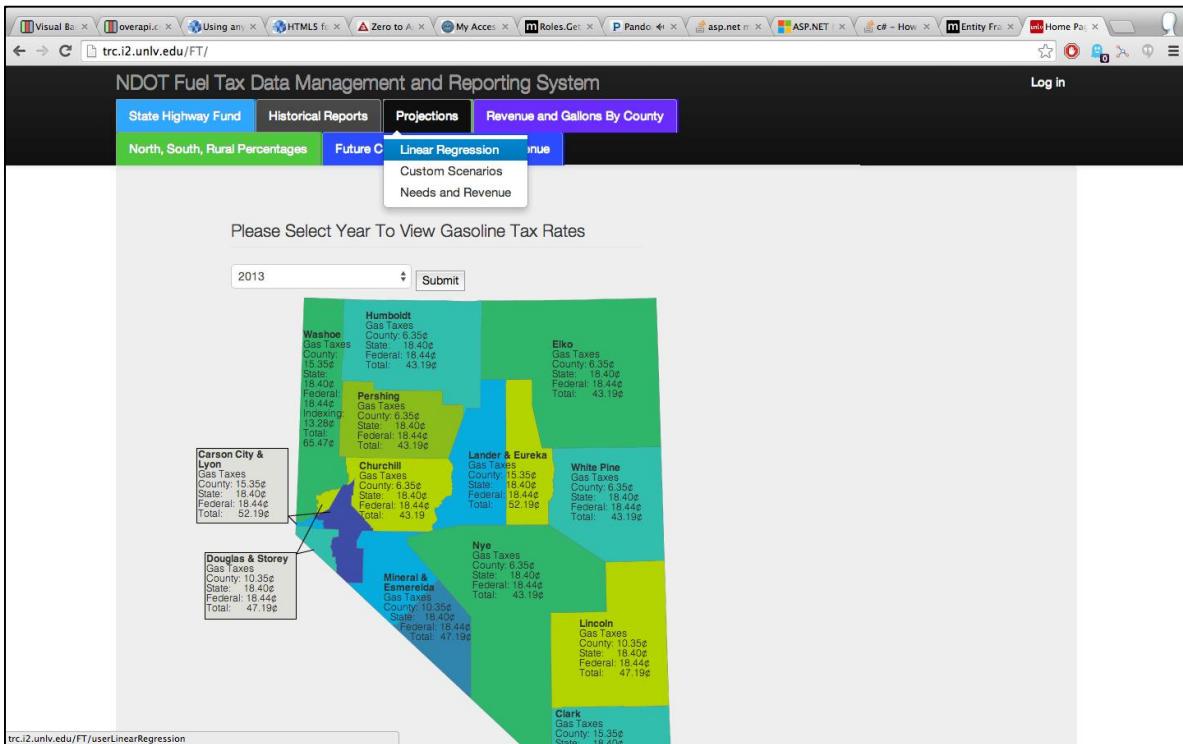


FIGURE 22 Projections for linear regression.

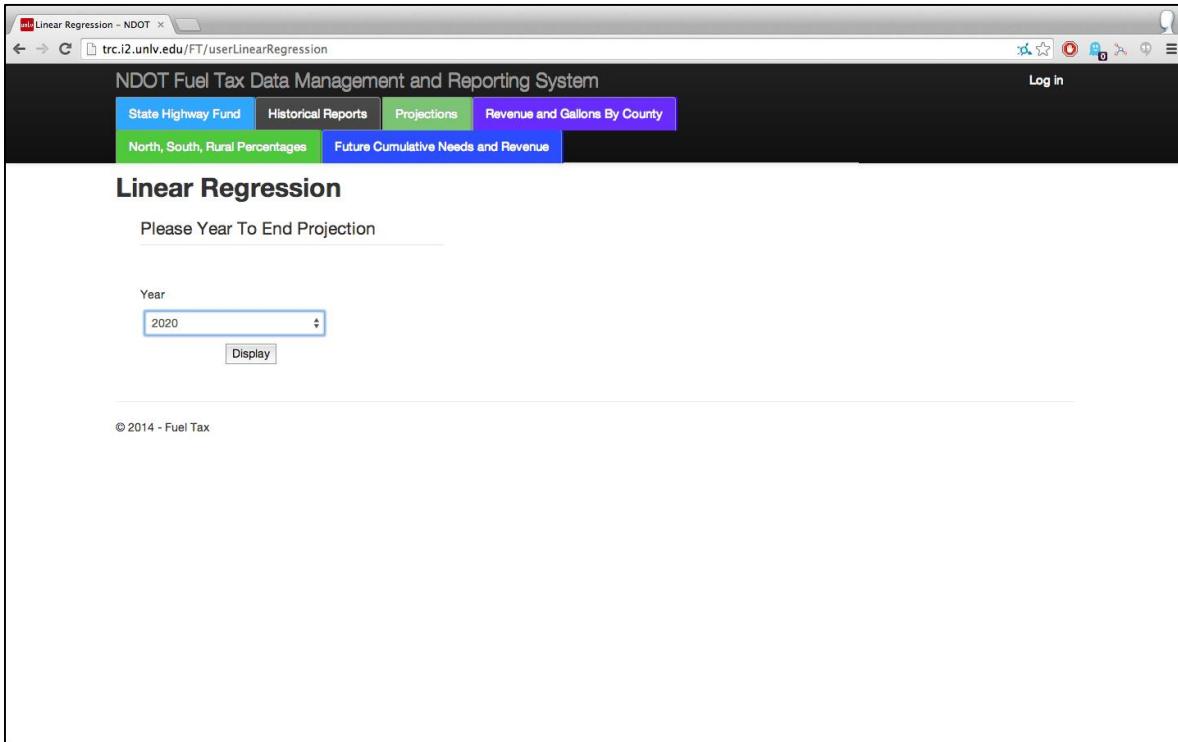


FIGURE 23 Selection of year to end projection of linear regression.

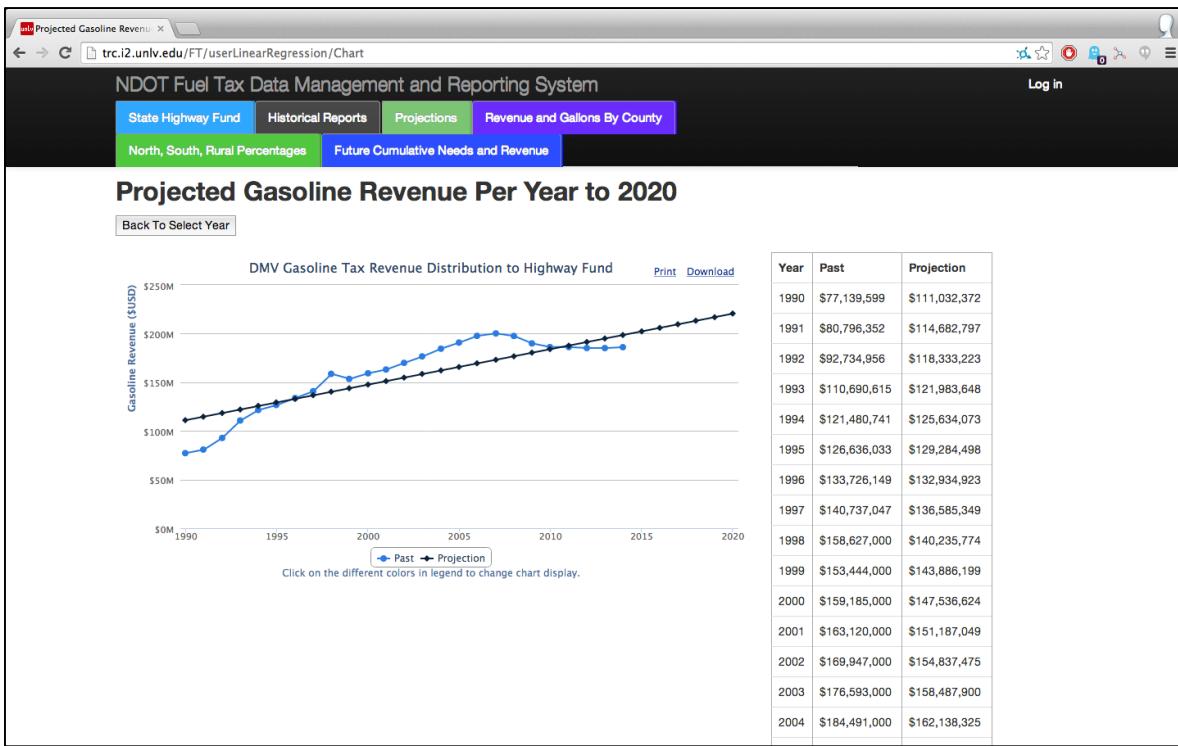


FIGURE 24 Graphical representation of projected gasoline revenue per year till 2020.

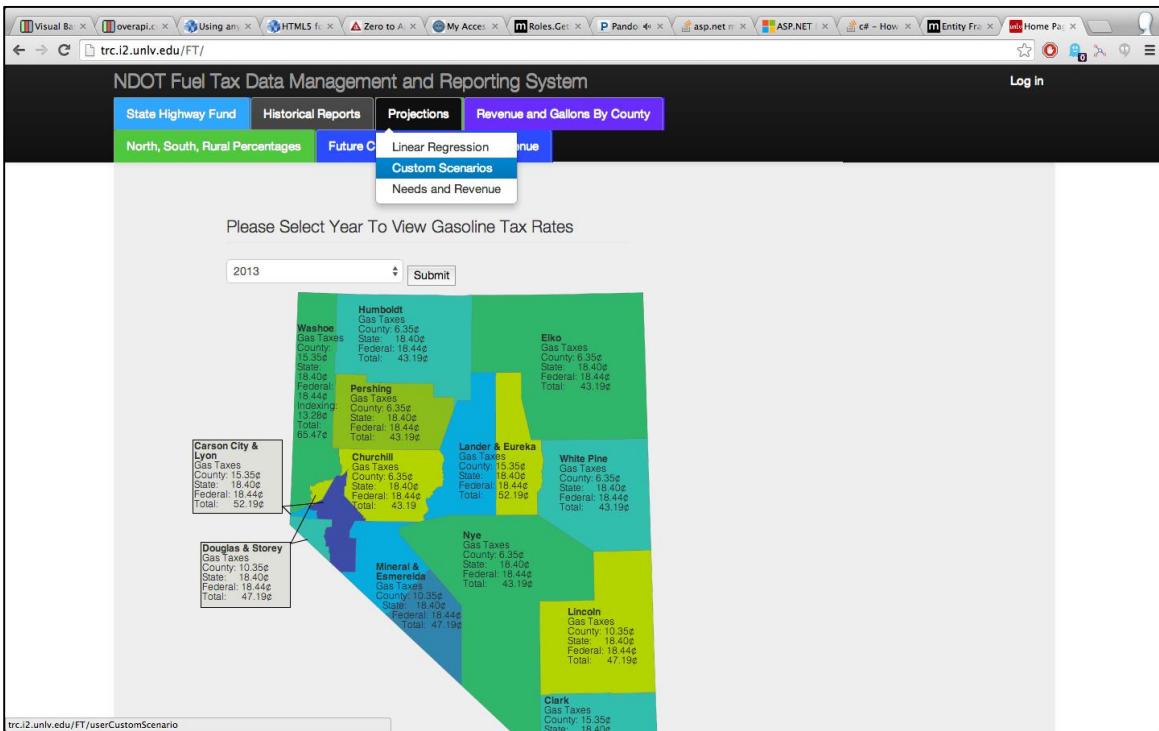


FIGURE 25 Projection of Custom Scenarios.

The screenshot shows the 'Custom Scenarios For Gasoline Revenue' section. It displays four scenarios with percentage changes and up/down buttons.

Scenario 1	Scenario 2
7.00 % <input type="radio"/> Up <input checked="" type="radio"/> Down	1.00 % <input type="radio"/> Up <input checked="" type="radio"/> Down
Scenario 3	Scenario 4
2.00 % <input checked="" type="radio"/> Up <input type="radio"/> Down	11.00 % <input checked="" type="radio"/> Up <input type="radio"/> Down

Display

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FIGURE 26 Selection of custom scenarios for gasoline revenue.

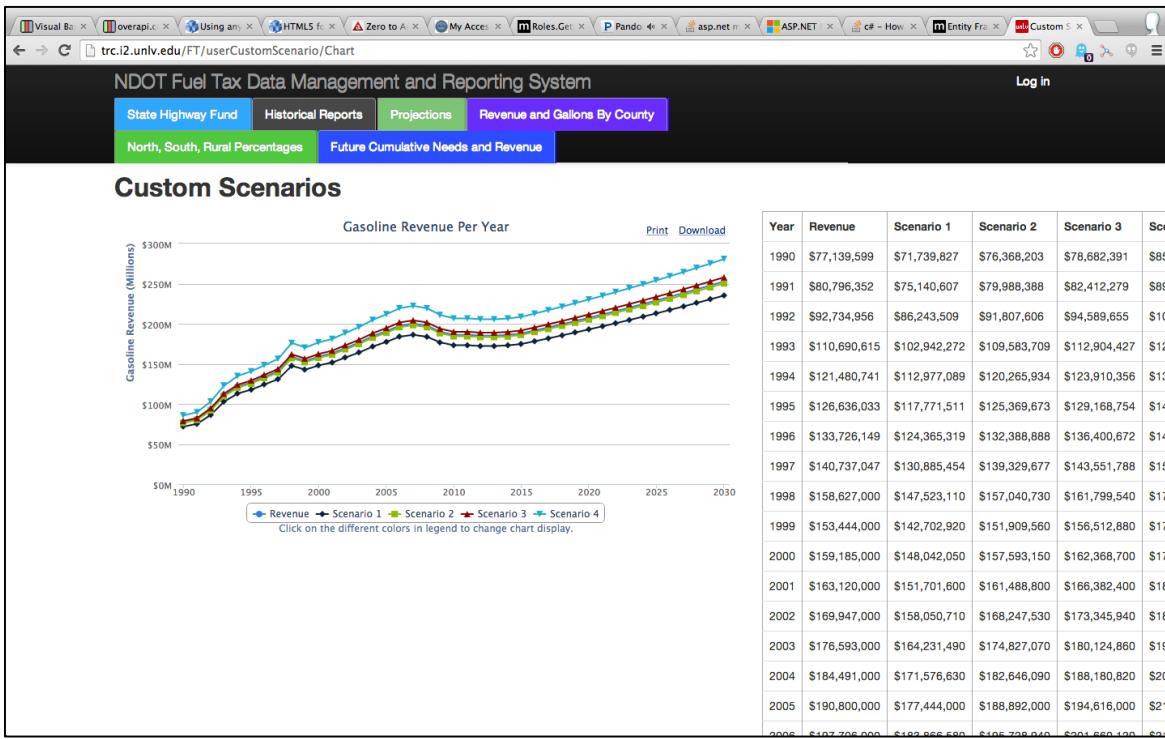


FIGURE 27 Graphical representation of custom scenario selection.

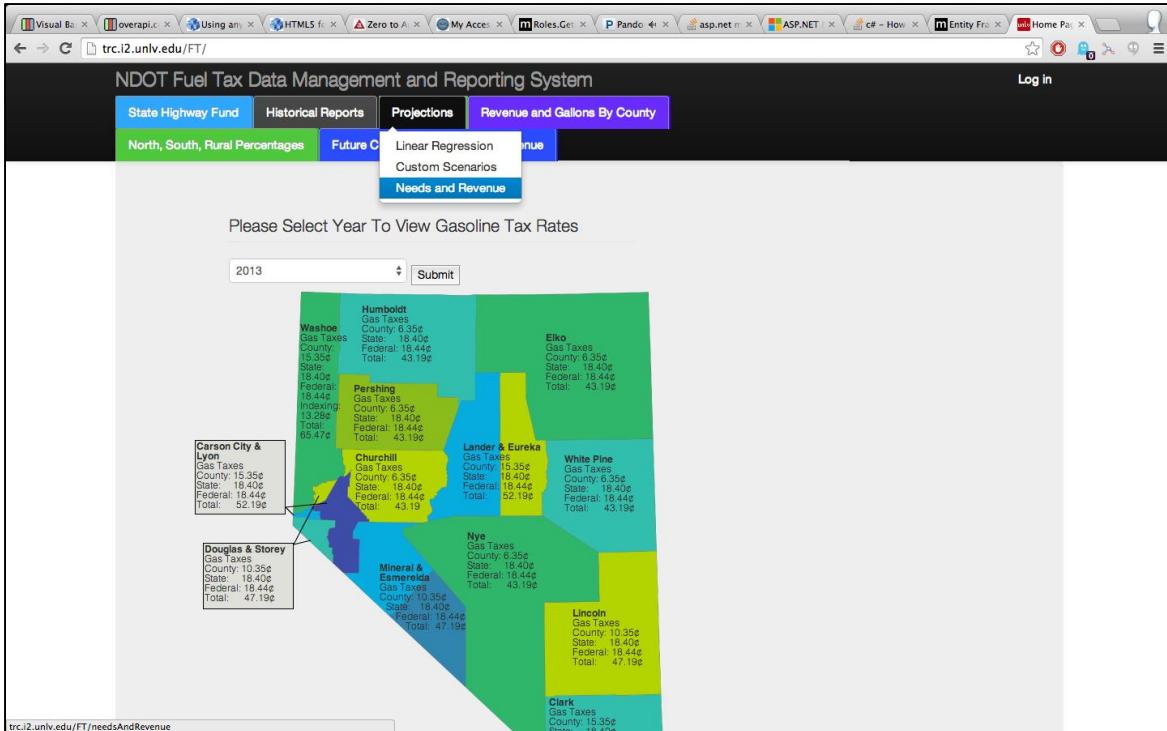


FIGURE 28 Projection of needs and revenue.

NDOT Fuel Tax Data Management and Reporting System

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[State Highway Fund](#) [Historical Reports](#) [Projections](#) [Revenue and Gallons By County](#)

[North, South, Rural Percentages](#) [Future Cumulative Needs and Revenue](#)

Estimated Needs and Revenue

Please Select Years

Please Select A Start Year
2013

Please Select An End Year
2016

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FIGURE 29 Selection of start and end year to estimate needs and revenue.

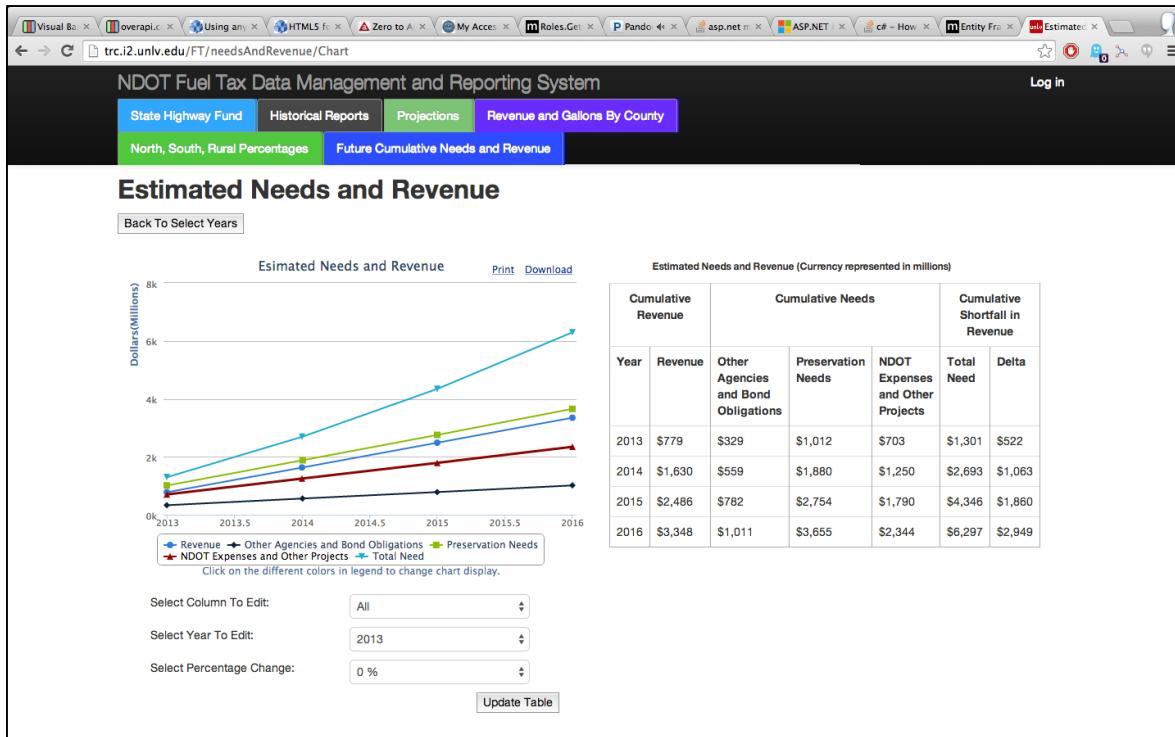


FIGURE 30 Selection of estimated needs and revenue from year 2013 to 2016.

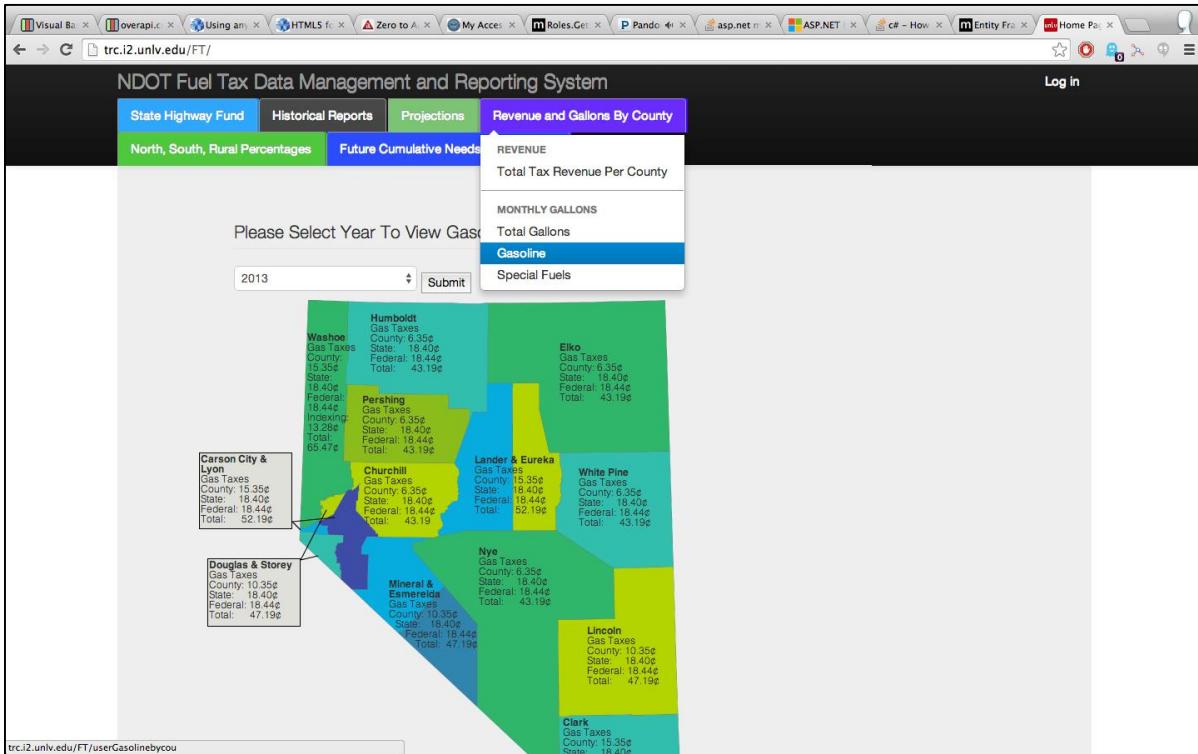


FIGURE 31 Monthly gallons of gasoline by county.

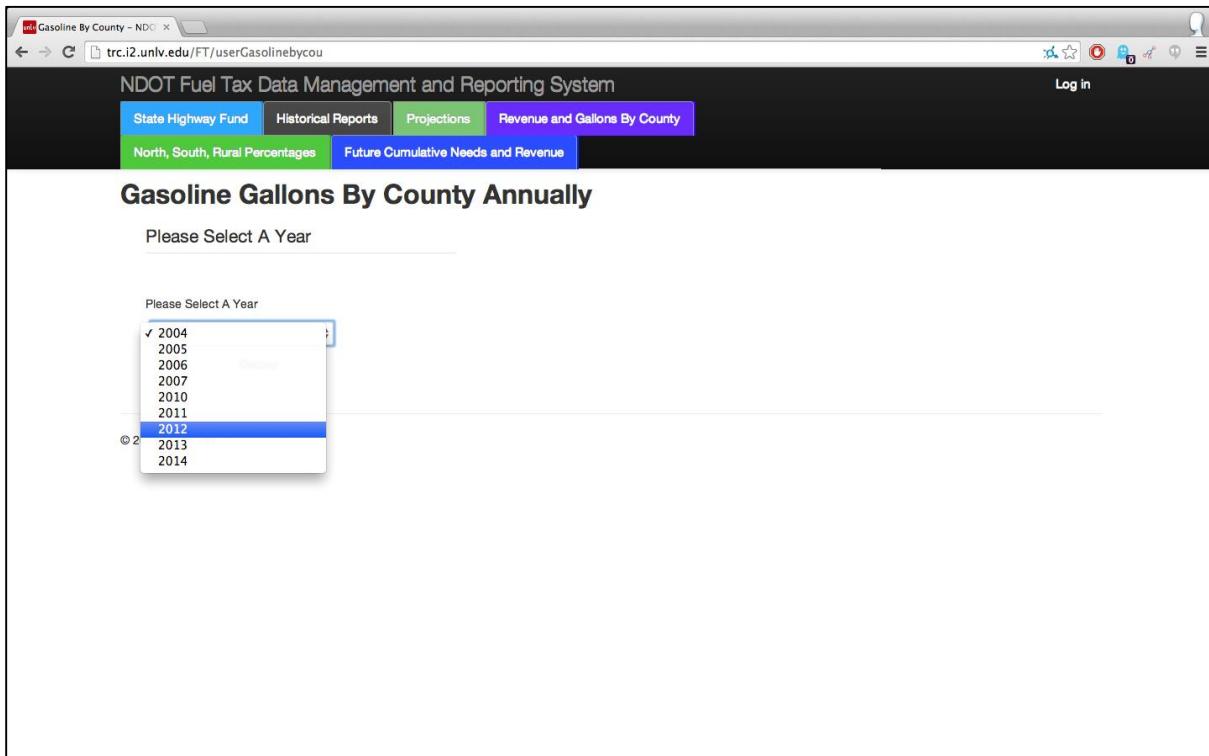


FIGURE 32 Selection of year for gasoline gallons by county.

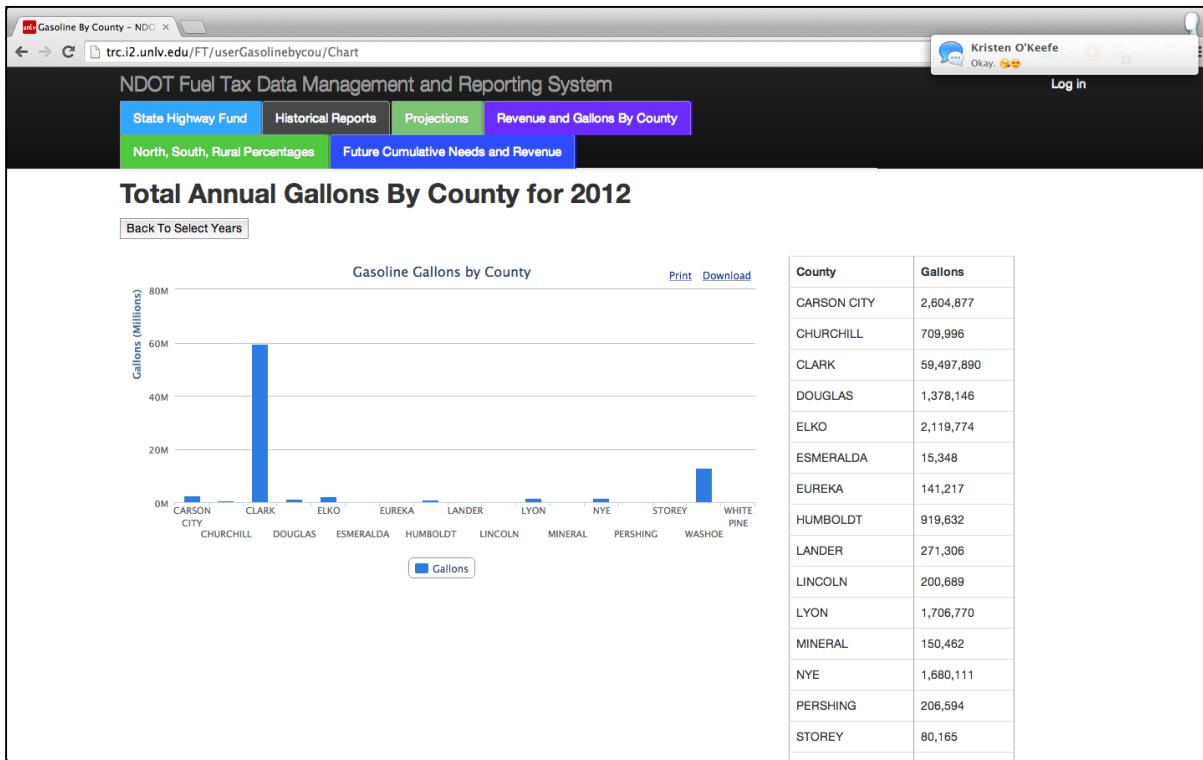


FIGURE 33 Graphical representation of total annual gallons by county for 2012.

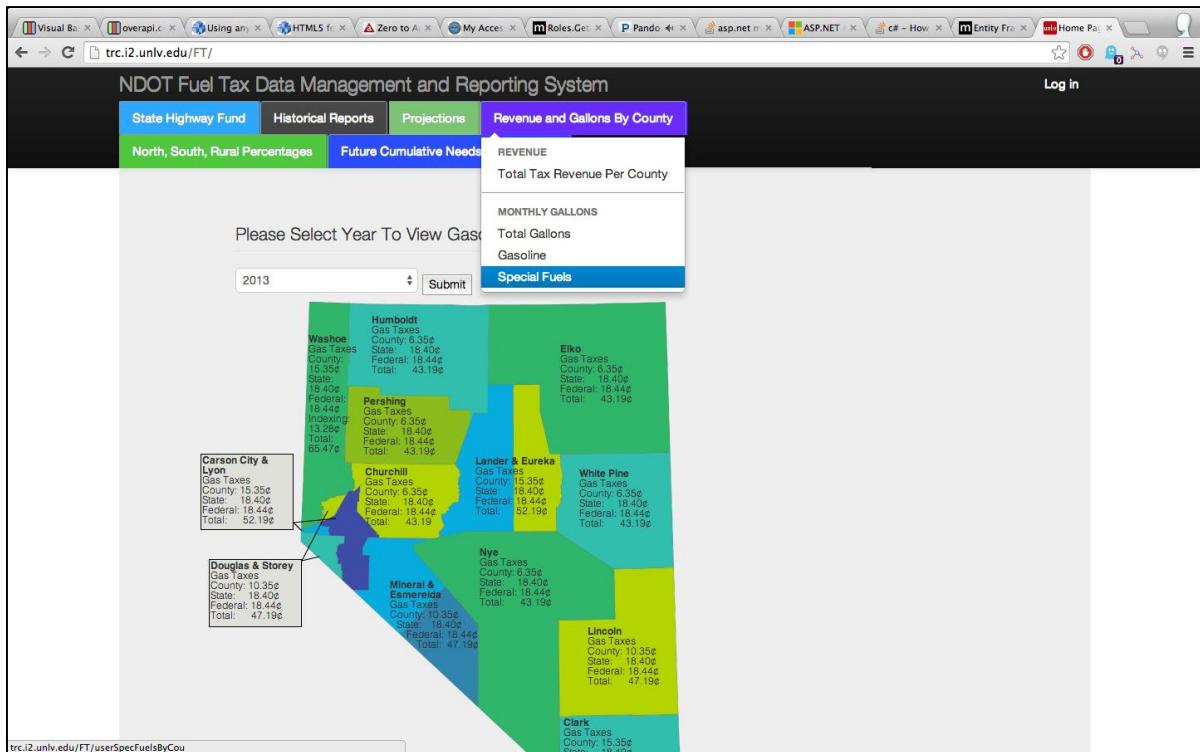


FIGURE 34 Monthly gallons of special fuels by county.

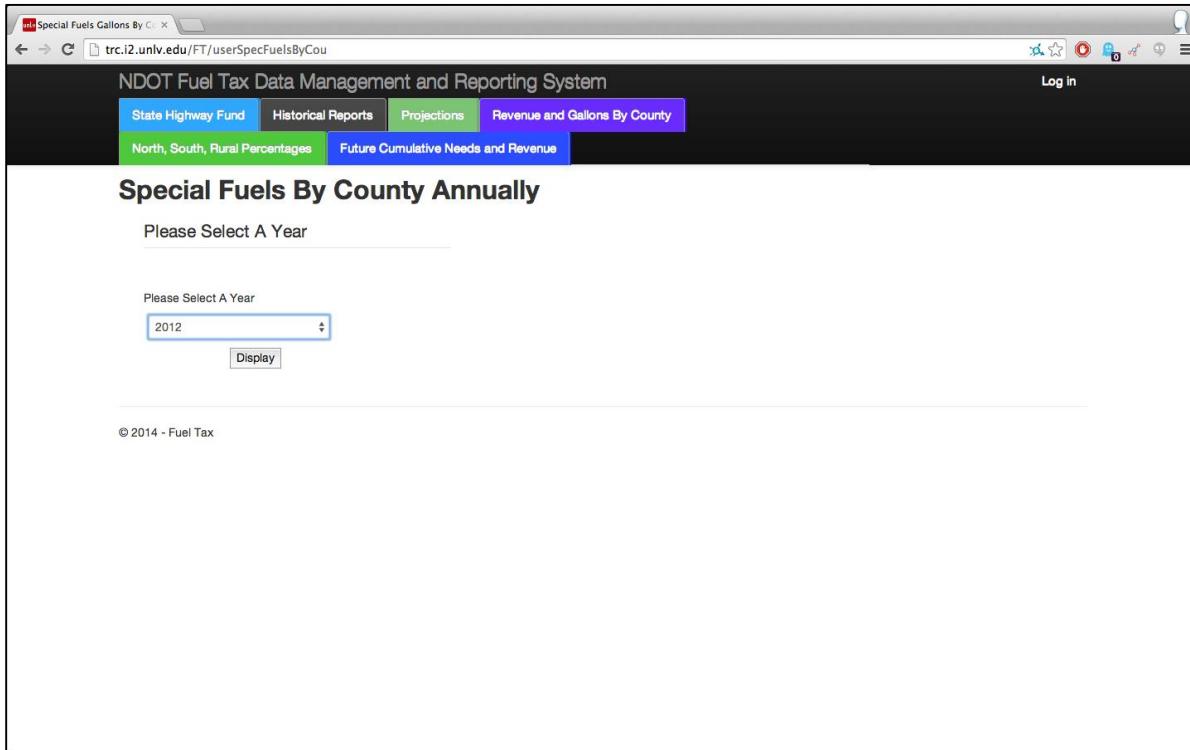


FIGURE 35 Selection of year for special fuels by county annually.

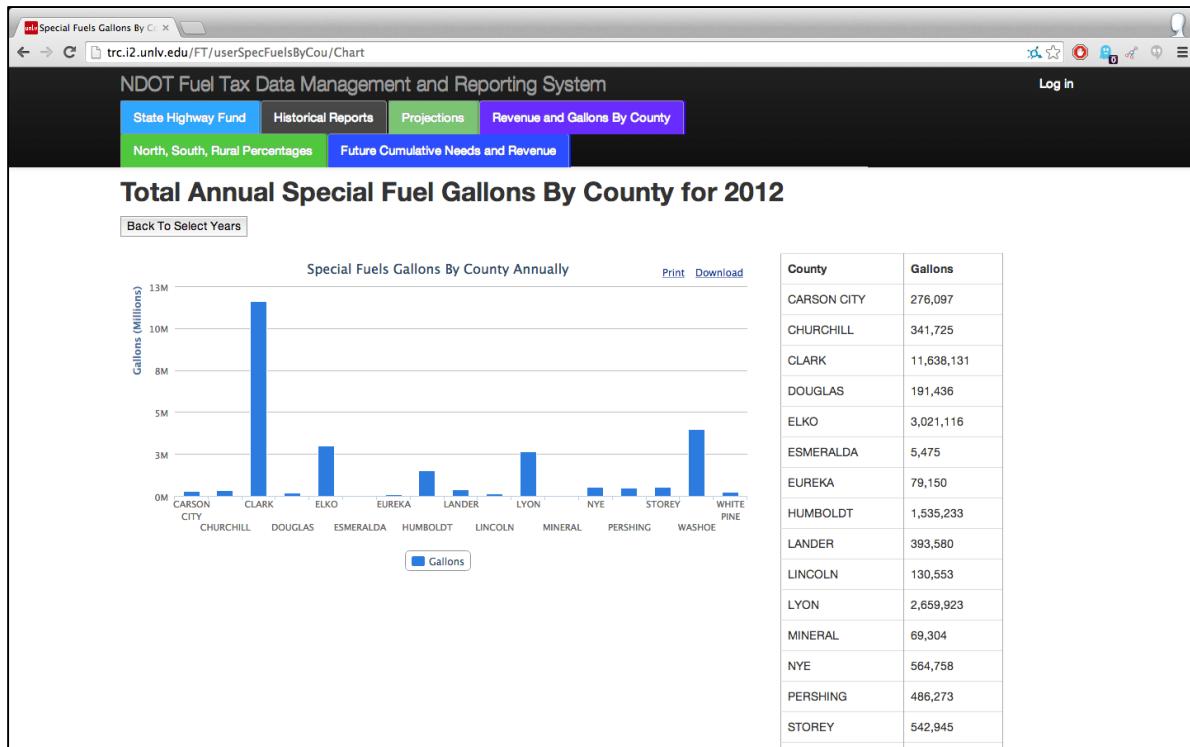


FIGURE 36 Graphical representation of total annual special fuel gallons by county for 2012.

http://trc.i2.unlv.edu/FT/userTotalGallonsByCounty

NDOT Fuel Tax Data Management and Reporting System

Log in

State Highway Fund Historical Reports Projections Revenue and Gallons By County

North, South, Rural Percentages Future Cumulative Needs and Revenue

Total Gallons By County

Gasoline Gallons By County		Gasoline Gallons By Month and County		Gasoline Gallons By Years and County	
Please Select A Year	<input type="button" value="Display"/>	Please Select A County	<input type="button" value="Display"/>	Please Select A Start Year	<input type="button" value="Display"/>
<input checked="" type="button" value="2004"/> 2005 2006 2007 2010 2011 2012 2013 2014		<input type="button" value="Carson City"/> Please Select A Year <input type="button" value="2004"/>		<input type="button" value="2004"/> Please Select An End Year <input type="button" value="2004"/>	<input checked="" type="radio"/> Calendar <input type="radio"/> State Fiscal <input type="radio"/> Federal Fiscal
			<input type="button" value="Display"/>		<input type="button" value="Display"/>

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FIGURE 37 Selection of year for gasoline gallons by county.

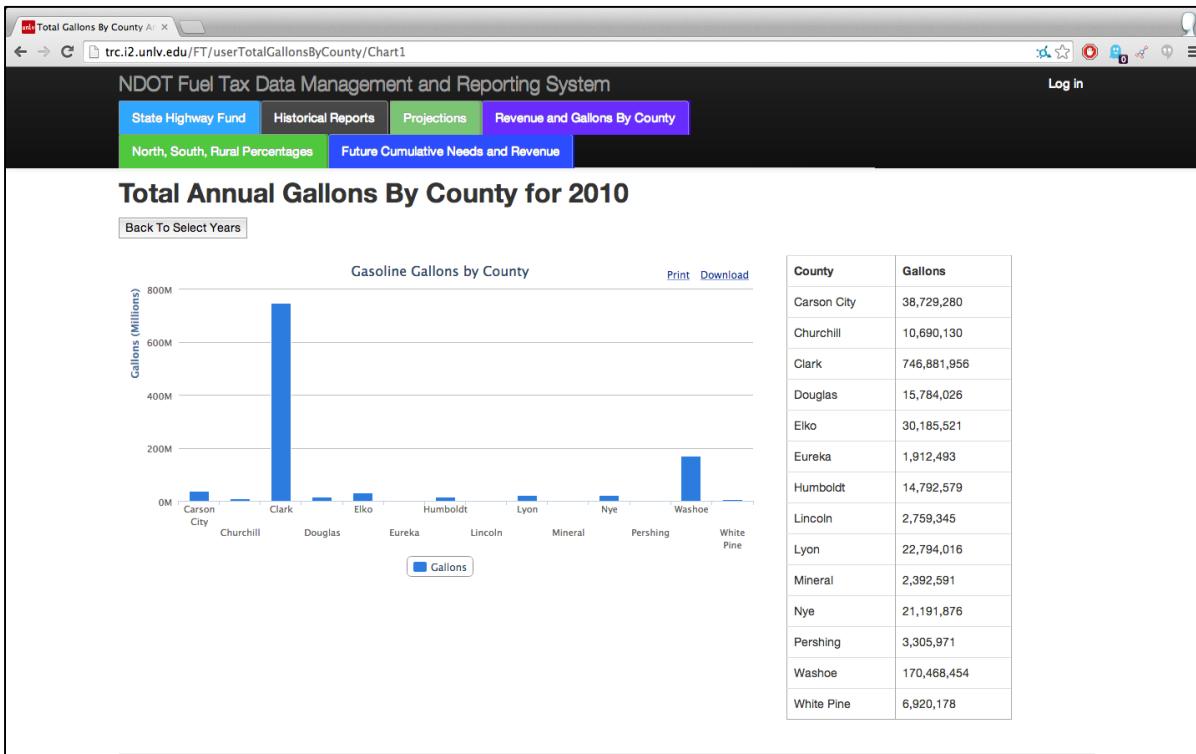


FIGURE 38 Graphical representation of total annual gallons by county for year 2010.

http://trc.i2.unlv.edu/FT/userTotalGallonsByCounty - X trc.i2.unlv.edu/FT/userTotalGallonsByCounty

NDOT Fuel Tax Data Management and Reporting System

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Total Gallons By County

Gasoline Gallons By County		Gasoline Gallons By Month and County	Gasoline Gallons By Years and County
Please Select A Year 2004 <input type="radio"/> Calendar <input type="radio"/> State Fiscal <input type="radio"/> Federal Fiscal	<input type="button" value="Display"/>	Gasoline Gallons By Month and County Please Select A County Carson City Churchill <input checked="" type="checkbox"/> Clark Douglas Elko Esmeralda Eureka Humboldt Lander Lincoln Lyon Mineral Nye Pershing Storey Washoe White Pine <input type="button" value="Display"/>	Gasoline Gallons By Years and County Please Select A Start Year 2004 Please Select An End Year 2004 <input type="radio"/> Calendar <input type="radio"/> State Fiscal <input type="radio"/> Federal Fiscal <input type="button" value="Display"/>

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FIGURE 39 Selection of gasoline gallons by month and county.

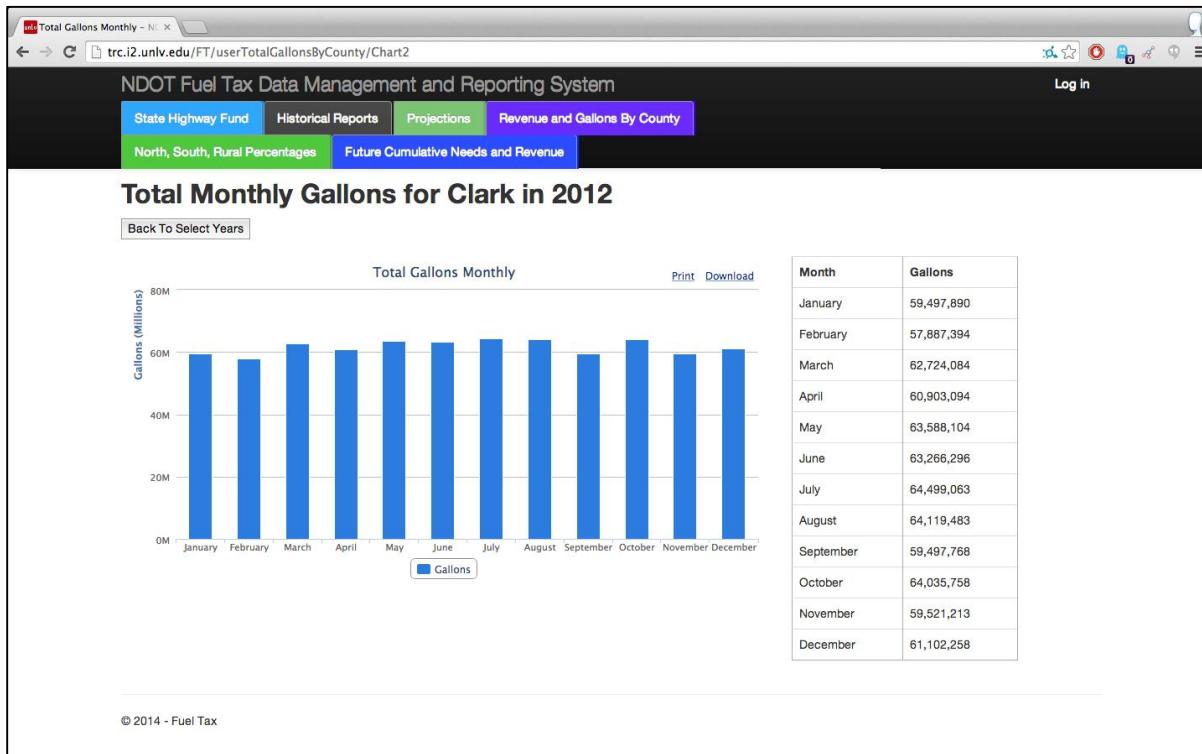


FIGURE 40 Graphical representation total monthly gallons for Clark County in 2012.

trc.i2.unlv.edu/FT/userTotalGallonsByCounty

NDOT Fuel Tax Data Management and Reporting System

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State Highway Fund [Historical Reports](#) [Projections](#) [Revenue and Gallons By County](#)

[North, South, Rural Percentages](#) [Future Cumulative Needs and Revenue](#)

Total Gallons By County

Gasoline Gallons By County	Gasoline Gallons By Month and County	Gasoline Gallons By Years and County
Please Select A Year 2004 <input type="radio"/> Calendar <input type="radio"/> State Fiscal <input type="radio"/> Federal Fiscal <input type="button" value="Display"/>	Please Select A County Clark Please Select A Year 2012 <input type="button" value="Display"/>	Please Select A County Clark Please Select A Start Year 2012 Please Select An End Year ✓ 2004 2005 2006 2007 2010 2011 2012 2013 2014 <input type="button" value="Display"/>

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FIGURE 41 Selection of total gallons by years and county.

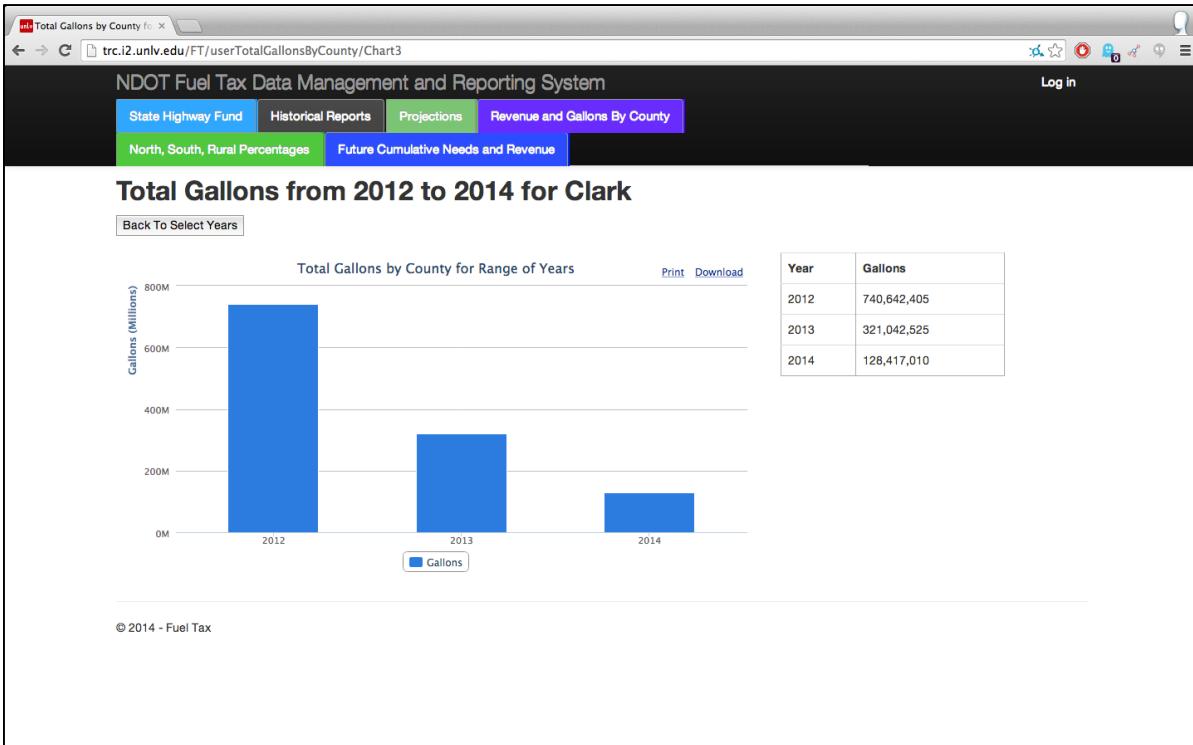


FIGURE 42 Graphical representation of total gallons for Clark County from year 2012 to 2014.

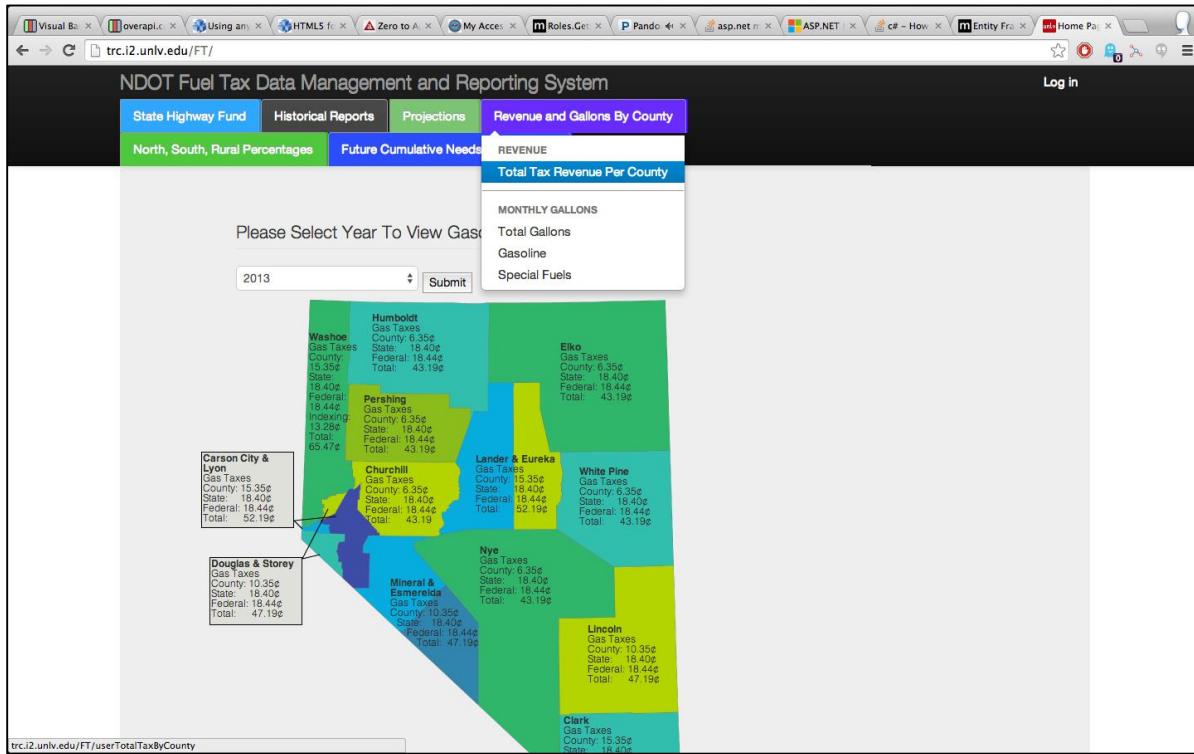


FIGURE 43 Selection of total revenue per county.

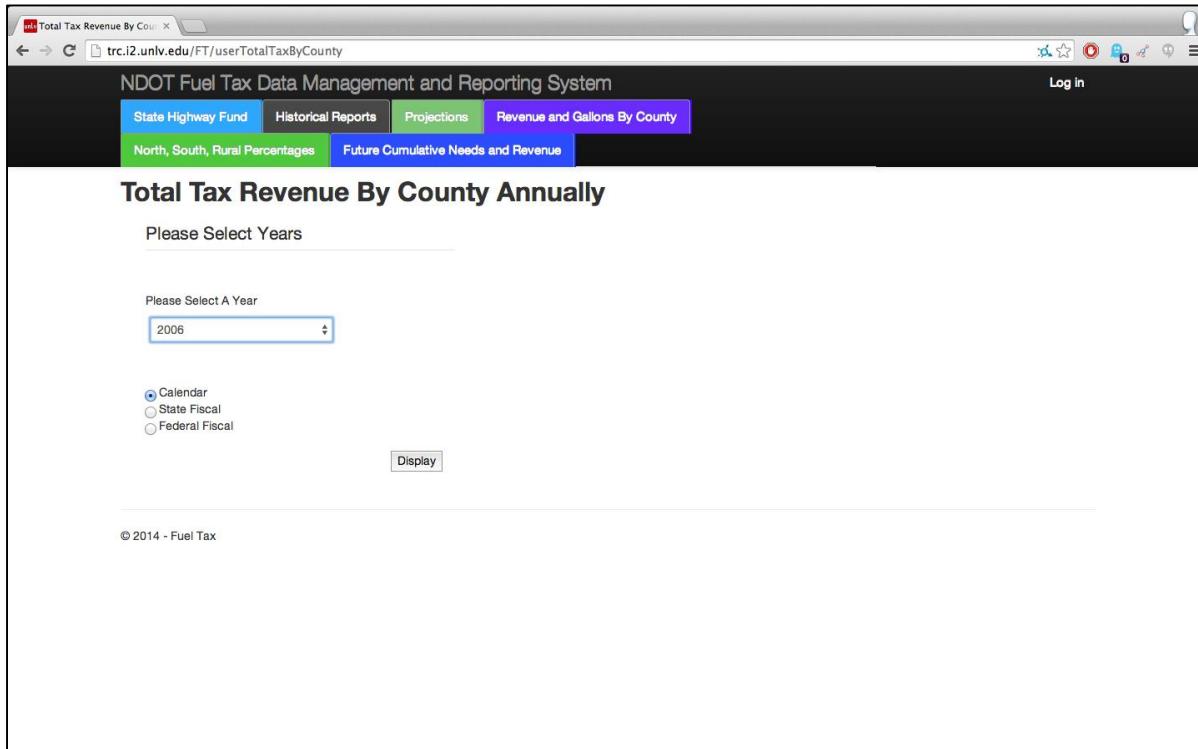


FIGURE 44 Selection of year for total revenue by county annually.

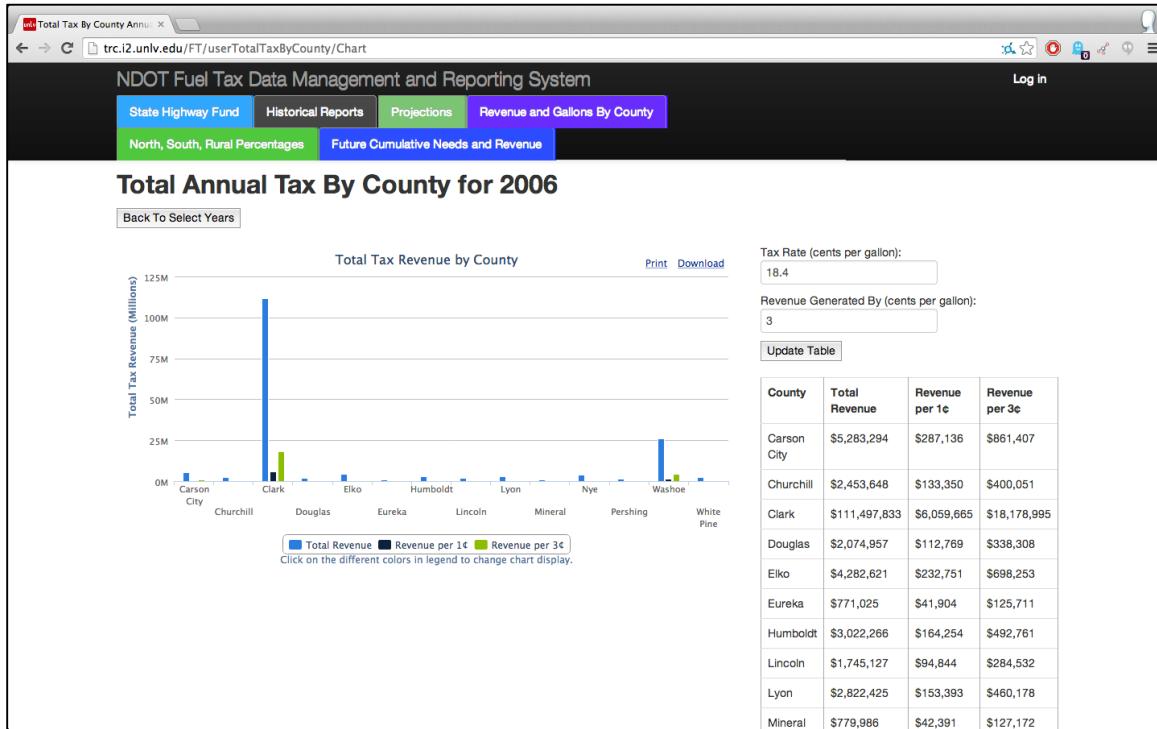


FIGURE 45 Graphical representation of total annual revenue by county for year 2006.

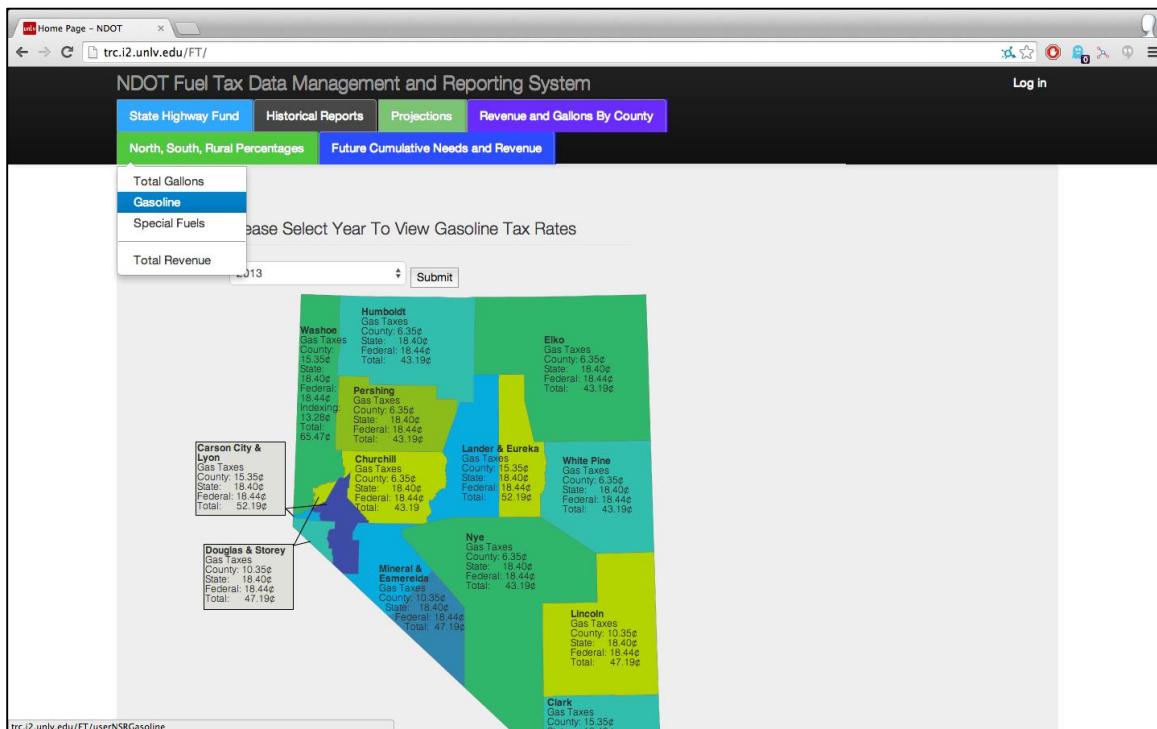


FIGURE 46 North, south, rural percentage of gasoline consumption.

NDOT Fuel Tax Data Management and Reporting System

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[State Highway Fund](#) [Historical Reports](#) [Projections](#) [Revenue and Gallons By County](#)

[North, South, Rural Percentages](#) [Future Cumulative Needs and Revenue](#)

North, South, Rural Gasoline Gallons

Please Select Years

Please Select A Year

2004

To Year

2011

Calendar
 State Fiscal
 Federal Fiscal

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FIGURE 47 Selection of year for north, south, rural gasoline gallons.

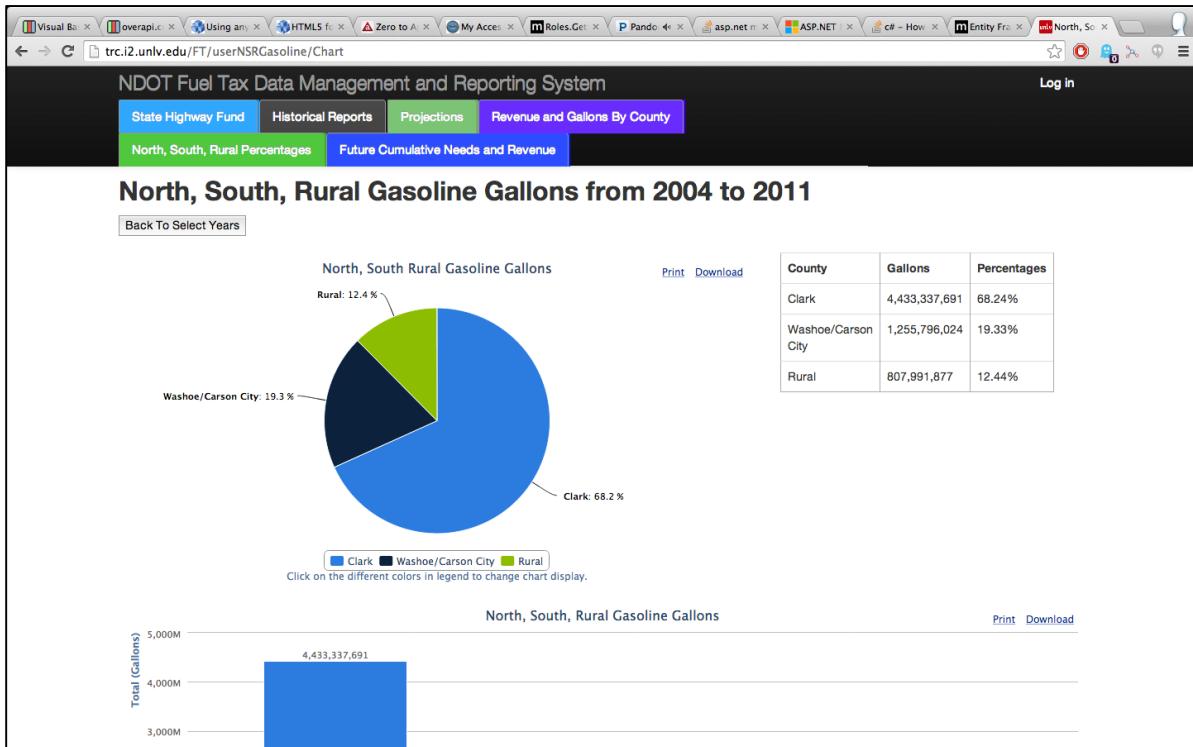


FIGURE 48 Graphical representation of north, south , rural percentage of gasoline gallons from year 2004 to 2011.

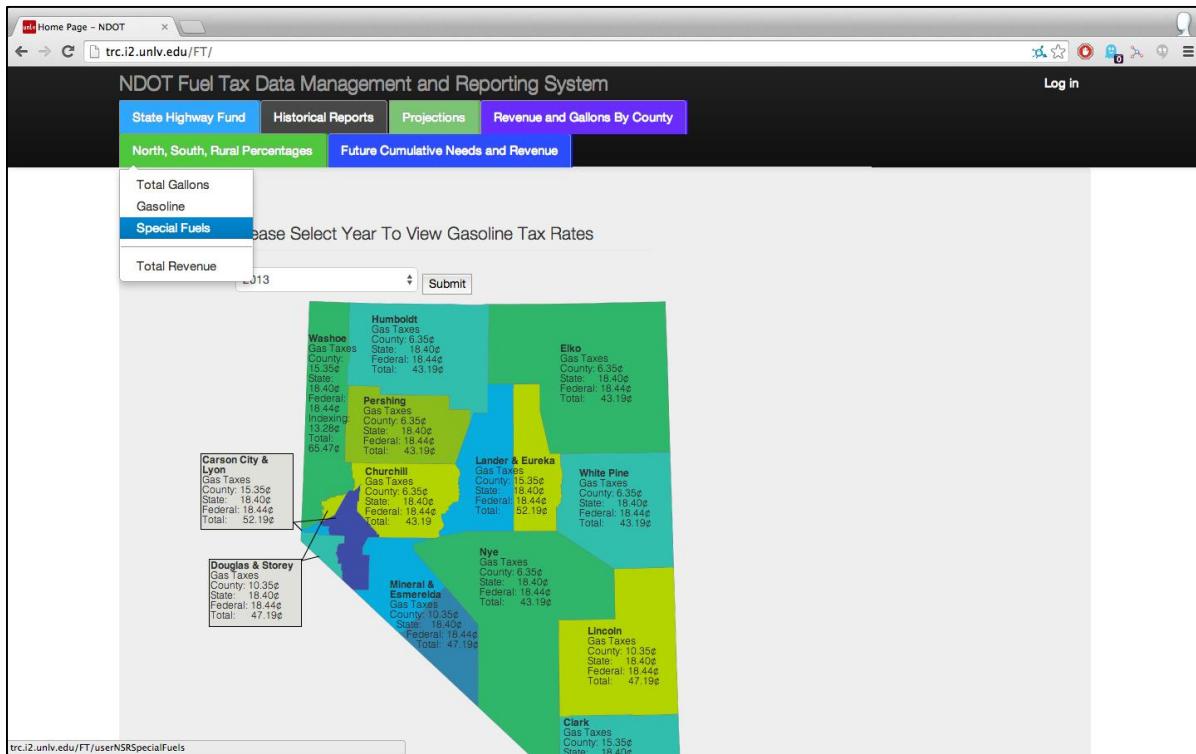


FIGURE 49 North, south, rural percentage of special fuels.

The screenshot shows a selection interface for "North, South, Rural Special Fuels Gallons". It includes fields for "Please Select Years" (Year from 2010 to 2014) and "Please Select A Year" (Year from 2010 to 2014). Below these are checkboxes for "Calendar", "State Fiscal", and "Federal Fiscal", with "Calendar" being checked. A "Display" button is at the bottom. The footer copyright is "© 2014 - Fuel Tax".

FIGURE 50 Selection of years for north, south, rural percentage of special fuels gallons.

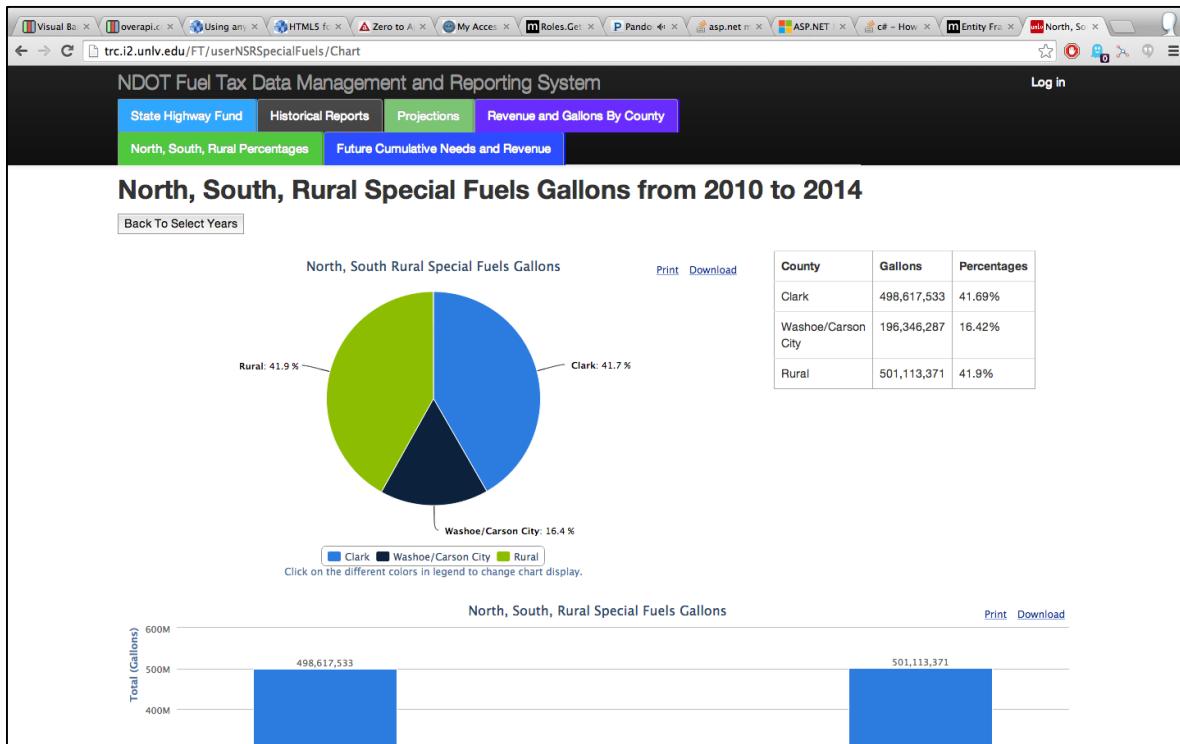


FIGURE 51 Graphical representation of north, south, rural percentage of special fuels gallons from year 2010 to 2014.

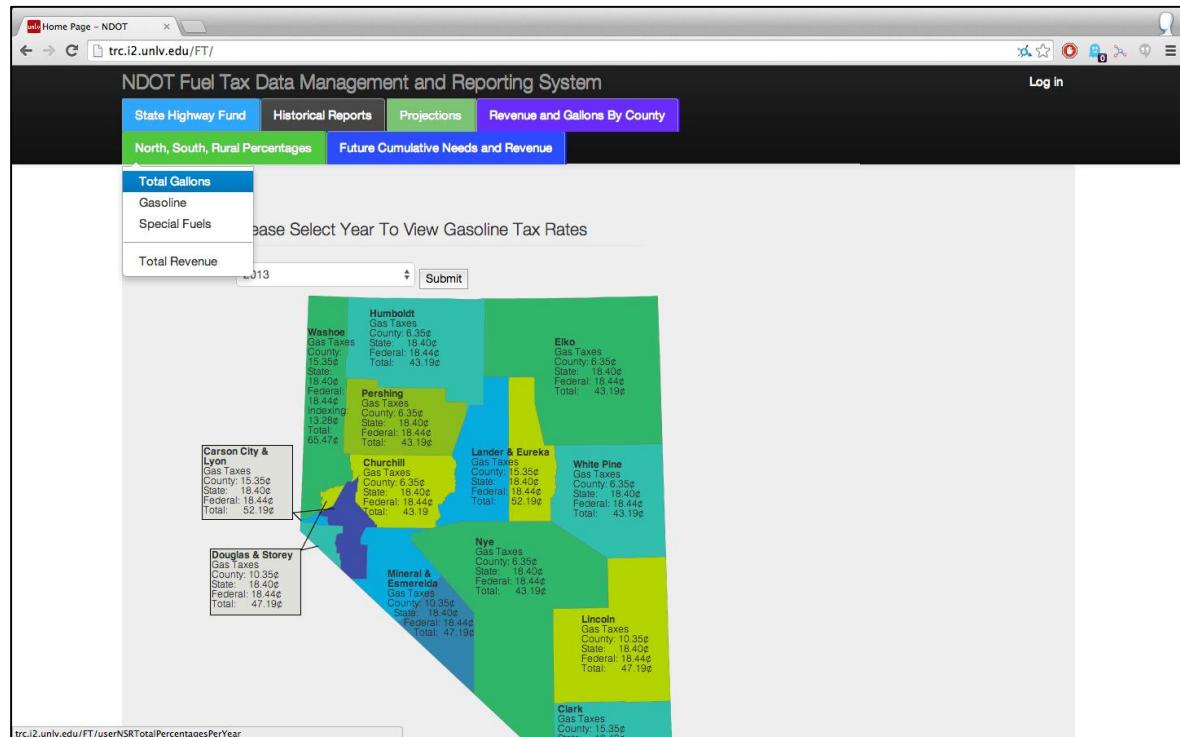


FIGURE 52 Total gasoline of north, south, rural percentages.

NDOT Fuel Tax Data Management and Reporting System

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North, South, Rural Total Gallons

Please Select Years

Please Select A Year

2004

To Year

2011

Calendar
 State Fiscal
 Federal Fiscal

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FIGURE 53 Selection of years for total gasoline for north, south, rural percentages.

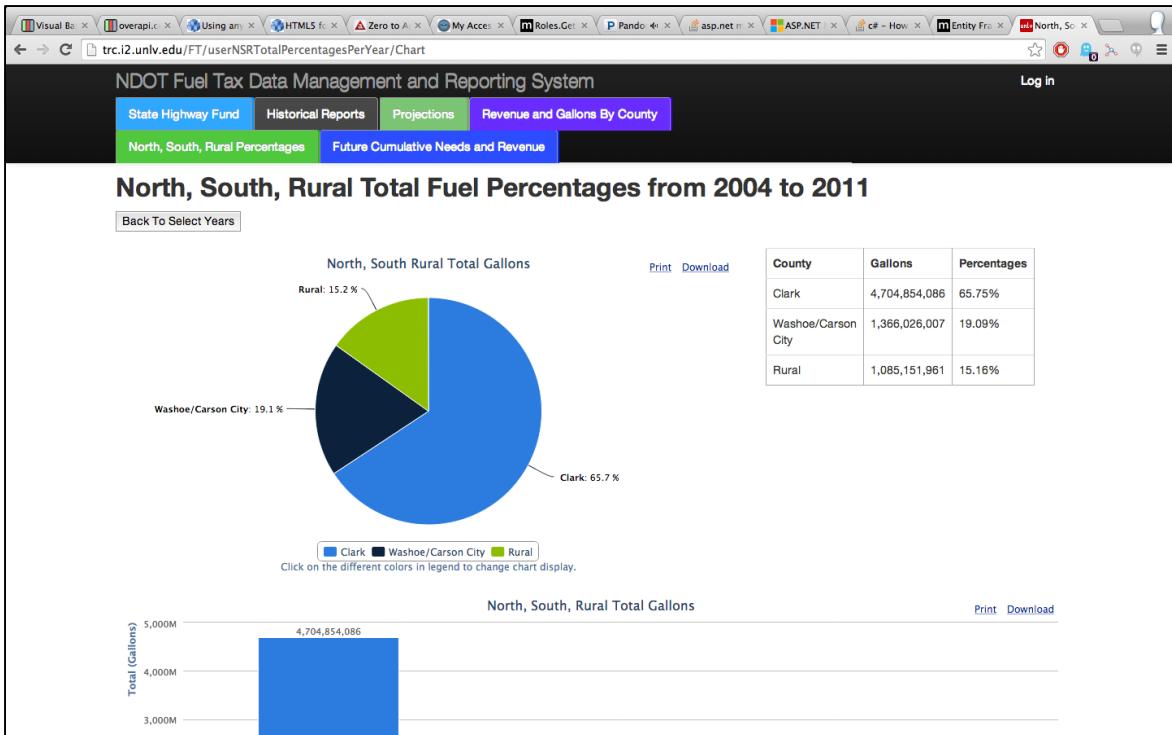


FIGURE 54 Graphical representation of north, south, rural total fuel percentages from year 2004 to 2011.

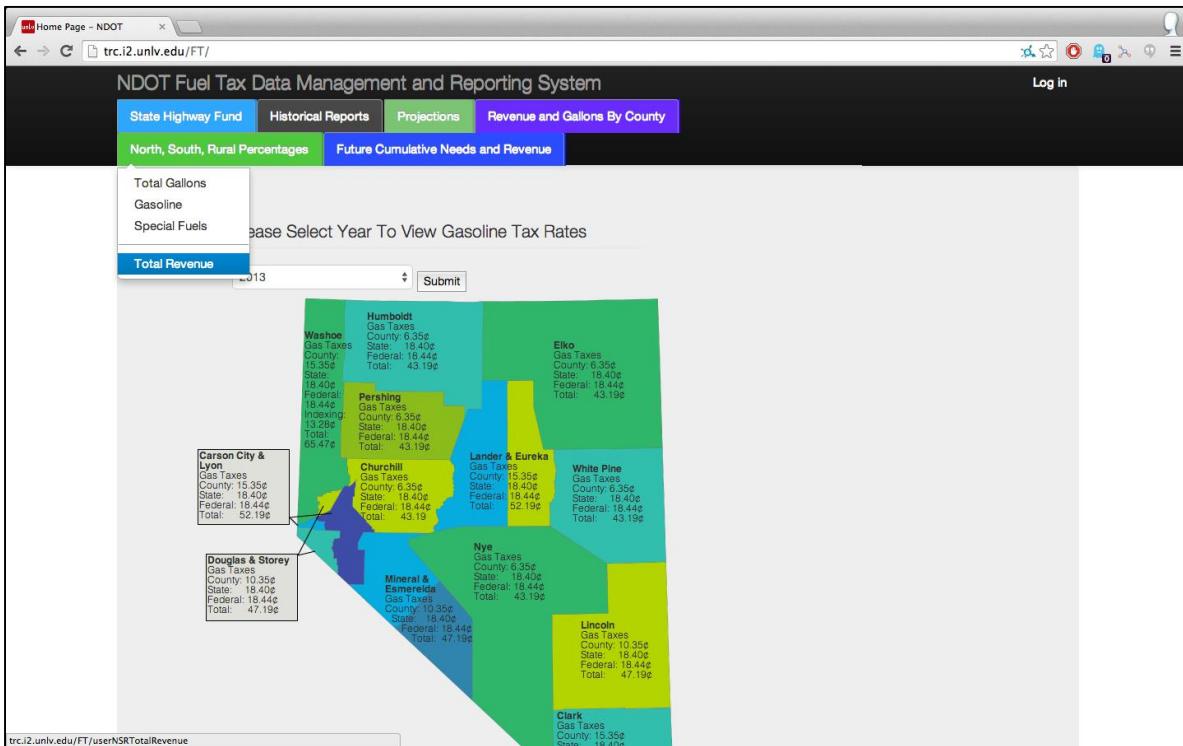


FIGURE 55 Total revenue of north, south, rural percentages.

The screenshot shows a search interface for selecting years:

- From Year:** 2006
- To Year:** 2013
- Options:**
 - Calendar
 - State Fiscal
 - Federal Fiscal
- Buttons:** Display, Log In

At the bottom, it says "© 2014 - Fuel Tax".

FIGURE 56 Selection of year north, south, rural total revenue.

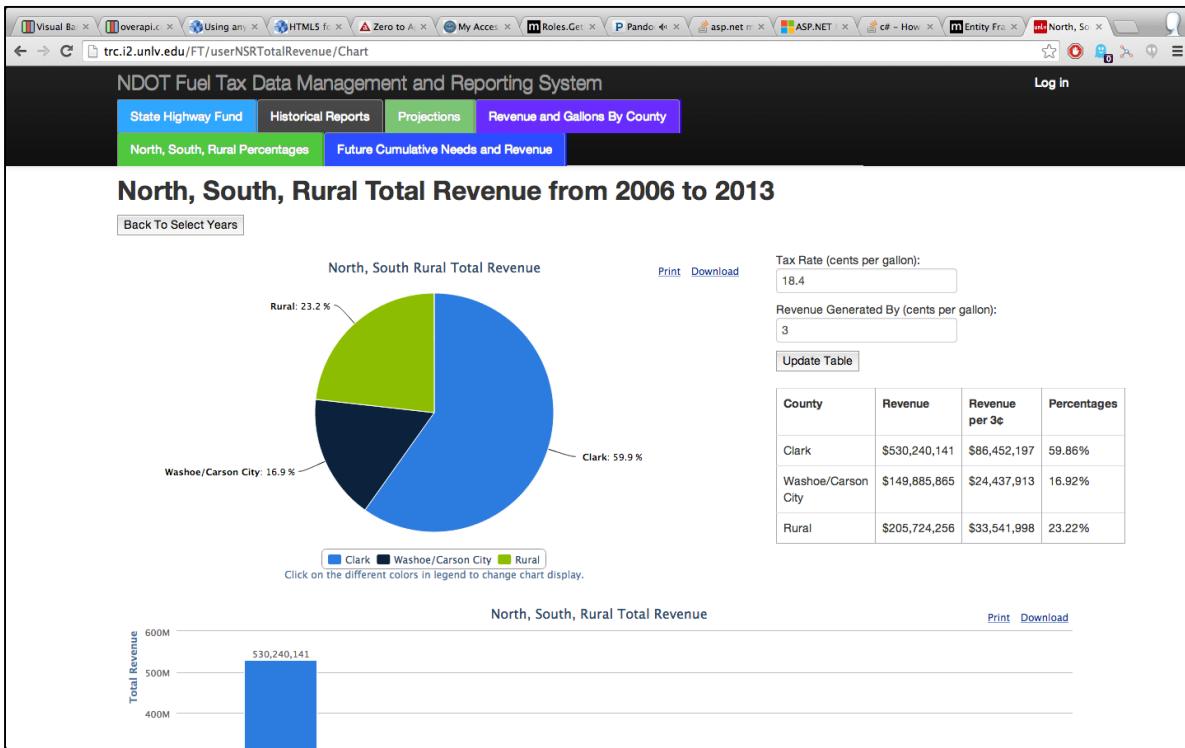


FIGURE 57 Graphical representation of north, south, rural percentages of total revenue from year 2006 to 2013.

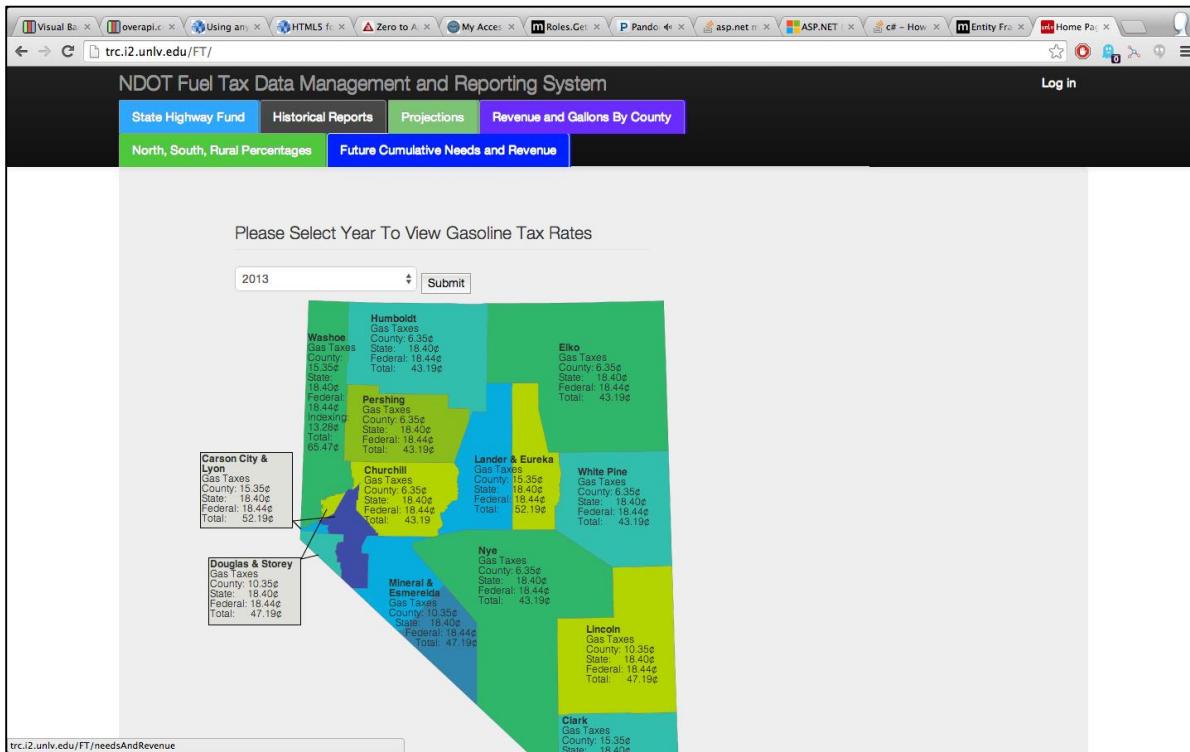


FIGURE 58 Future cumulative needs and revenue.

NDOT Fuel Tax Data Management and Reporting System

[Log in](#)

State Highway Fund Historical Reports Projections Revenue and Gallons By County

North, South, Rural Percentages Future Cumulative Needs and Revenue

Estimated Needs and Revenue

Please Select Years

Please Select A Start Year
2013

Please Select An End Year
2017

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FIGURE 59 Selection of years for estimated needs and revenue.

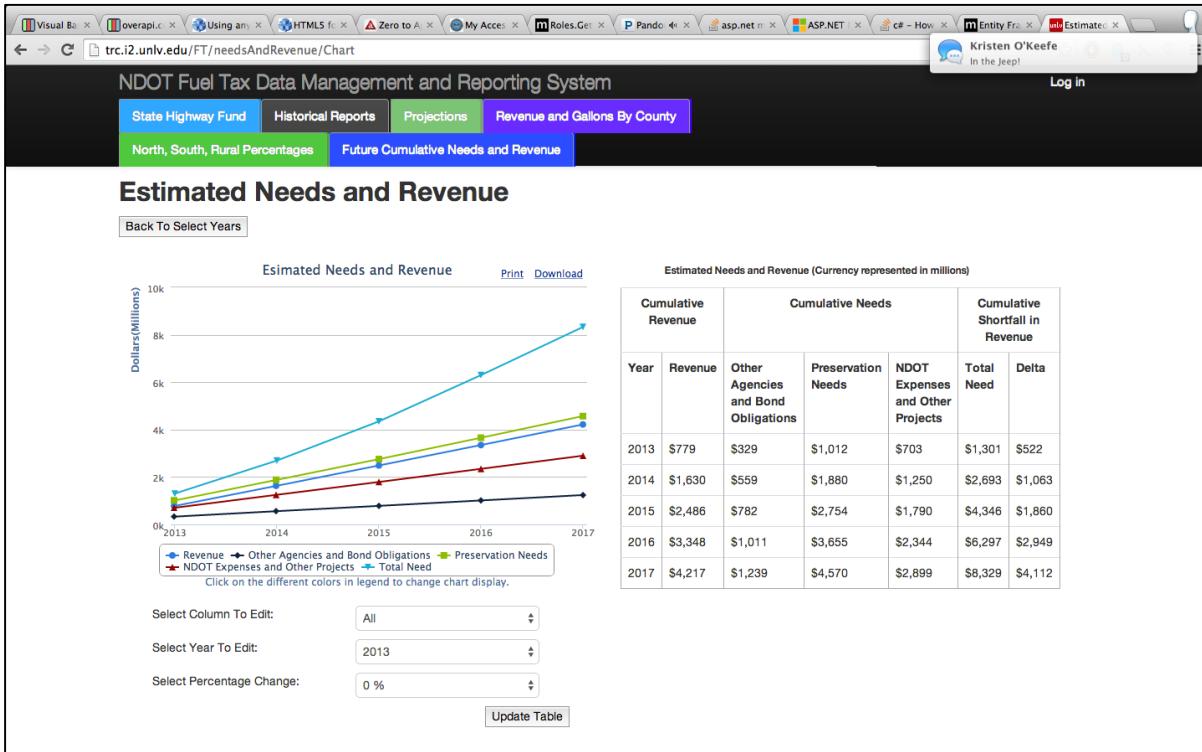


FIGURE 60 Graphical representation of estimated needs and revenue from year 2013 to 2017.

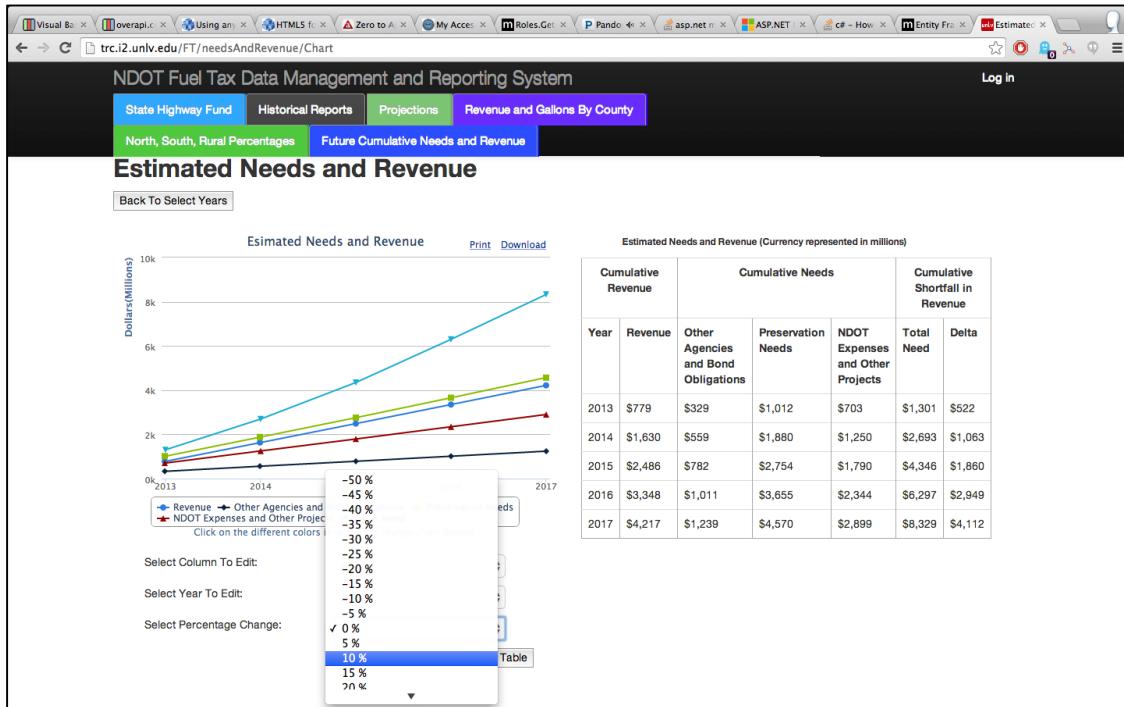


FIGURE 61 Selection of percentage change to estimate needs and revenue.

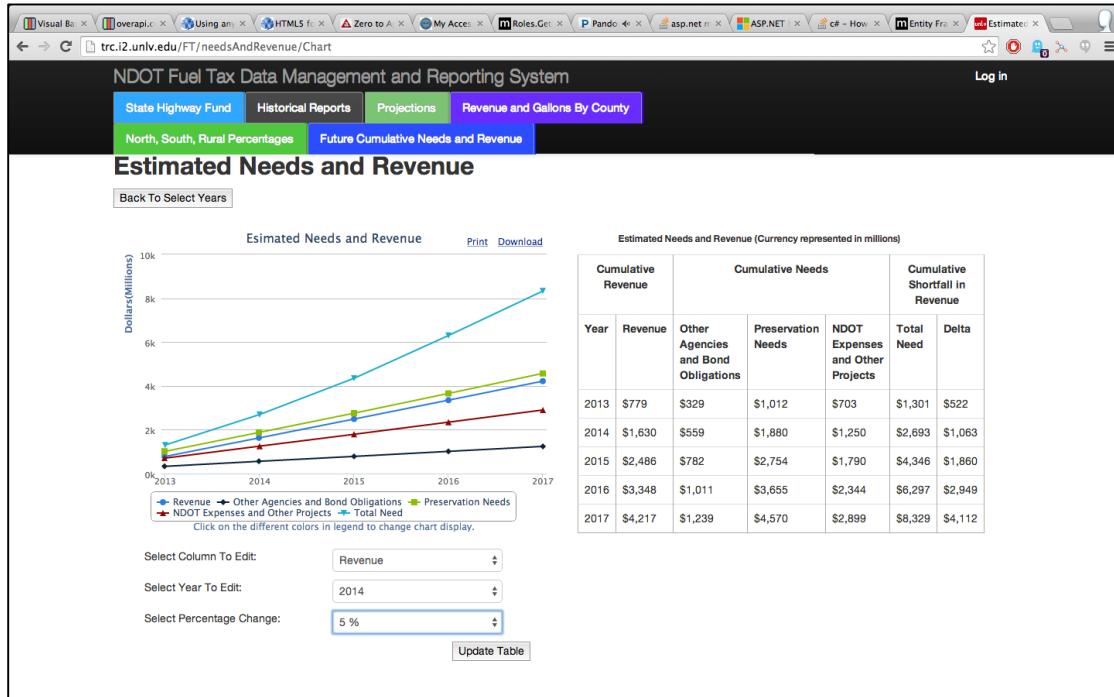


FIGURE 62 Graphical representation of estimated needs and revenue after change in percentage from year 2013 to 2017.

Register - NDOT

trc.i2.unlv.edu/FT/Account/Register

NDOT Fuel Tax Data Management and Reporting System

Hello ndot! Log off Register New User

[State Highway Fund](#) [Historical Reports](#) [Projections](#) [Revenue and Gallons By County](#) [North, South, Rural Percentages](#)

[Future Cumulative Needs and Revenue](#) [Upload/Create Report](#) [County Tax](#)

Register.

Create a new account.

User name

Password

Confirm password

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FIGURE 63 Register page for new user.

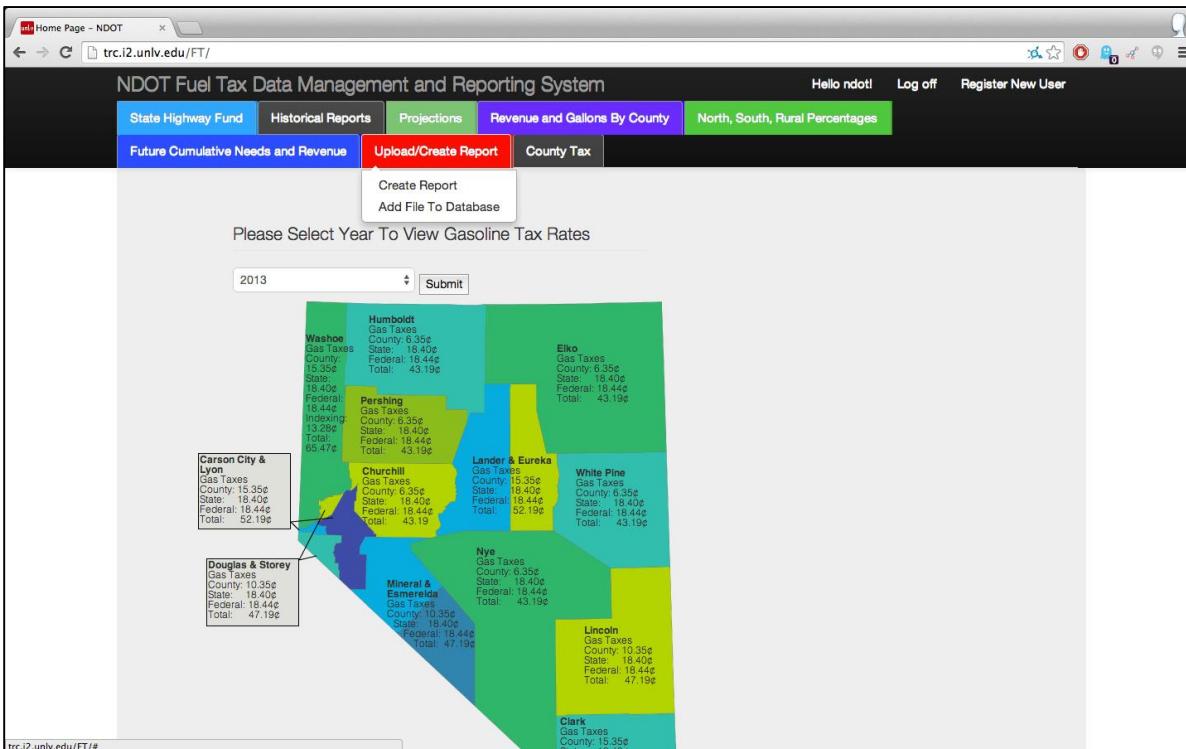


FIGURE 64 Creating new report and add file to database.

The screenshot shows a web browser window for the 'NDOT Fuel Tax Data Management and Reporting System'. The URL is trc.i2.unlv.edu/FT/userCreateReport. The page title is 'Create A Fuel tax Report'. The top navigation bar includes links for 'Hello ndot!', 'Log off', and 'Register New User'. Below the title, there is a horizontal menu bar with several tabs: 'State Highway Fund' (selected), 'Historical Reports', 'Projections', 'Revenue and Gallons By County' (highlighted in green), 'Future Cumulative Needs and Revenue', 'Upload/Create Report' (highlighted in red), and 'County Tax'. A sub-menu for 'Revenue and Gallons By County' is visible, listing 'North, South, Rural Percentages'. The main content area contains instructions: 'Use this form to create a report on the monthly consumption of gasoline.' It asks to 'Select a Fiscal Year file, a Gasgal file, then click "Create Report".' There are dropdown menus for 'Please Select Year' (2014) and 'Please Select A Month' (January). File selection fields are provided for 'Fiscal Year File' (Choose File, No file chosen) and 'Gasgal File' (Choose File, No file chosen). A 'Create Report' button is at the bottom. At the very bottom of the page is a copyright notice: '© 2014 - Fuel Tax'.

FIGURE 65 Creating new report.

The screenshot shows a web browser window for the 'NDOT Fuel Tax Data Management and Reporting System'. The URL is trc.i2.unlv.edu/FT/userAddFile. The page title is 'Add File to Database - NDOT'. The top navigation bar includes links for 'Hello ndot!', 'Log off', and 'Register New User'. Below the title, there is a horizontal menu bar with several tabs: 'State Highway Fund' (selected), 'Historical Reports', 'Projections', 'Revenue and Gallons By County' (highlighted in green), 'Future Cumulative Needs and Revenue', 'Upload/Create Report' (highlighted in red), and 'County Tax'. A sub-menu for 'Revenue and Gallons By County' is visible, listing 'North, South, Rural Percentages'. The main content area has a heading 'Select the file to upload data into the database'. It contains two sections: 'Upload DMV Statistical and FHWA 551M Reports Here' and 'Upload Highway Fund Needs and Revenue Here'. The left section has dropdown menus for 'Please Select Report Type' (with '✓ DMV Statistical Reports' selected, showing 'FHWA 551M Reports' and 'Please Select Year' dropdown with '2014'), 'Please Select A Month' (dropdown with 'January'), and a file selection field 'Data File: [Choose File] No file chosen'. It also has an 'Upload' button. The right section has a dropdown menu for 'Please Select A File To Upload' and a file selection field 'Data File: [Choose File] No file chosen'. It also has an 'Upload' button. Below these sections is a note: 'Please use only the following formats:' followed by a list: 'Sample DMV Statistical Report', 'Sample FHWA 551M Report', 'Sample Source Data for FHWA 551M Report', and 'Sample Estimated Highway Fund Needs and Rev'. At the bottom of the page is a copyright notice: '© 2014 - Fuel Tax'.

FIGURE 66 Selection of file to upload in the database.

QUALITY CONTROL AND RISK MANAGEMENT

Throughout the project, stringent quality control protocols were put in place. The quality control protocols included conducting quality control at every step of the process to ensure the system was functioning as intended. As part of the quality control process, regular meetings were held with the NDOT Performance Analysis Division Chief and the division staff to seek feedback and input as the project progressed.

APPENDICES

APPENDIX A

SYSTEM DOCUMENTATION

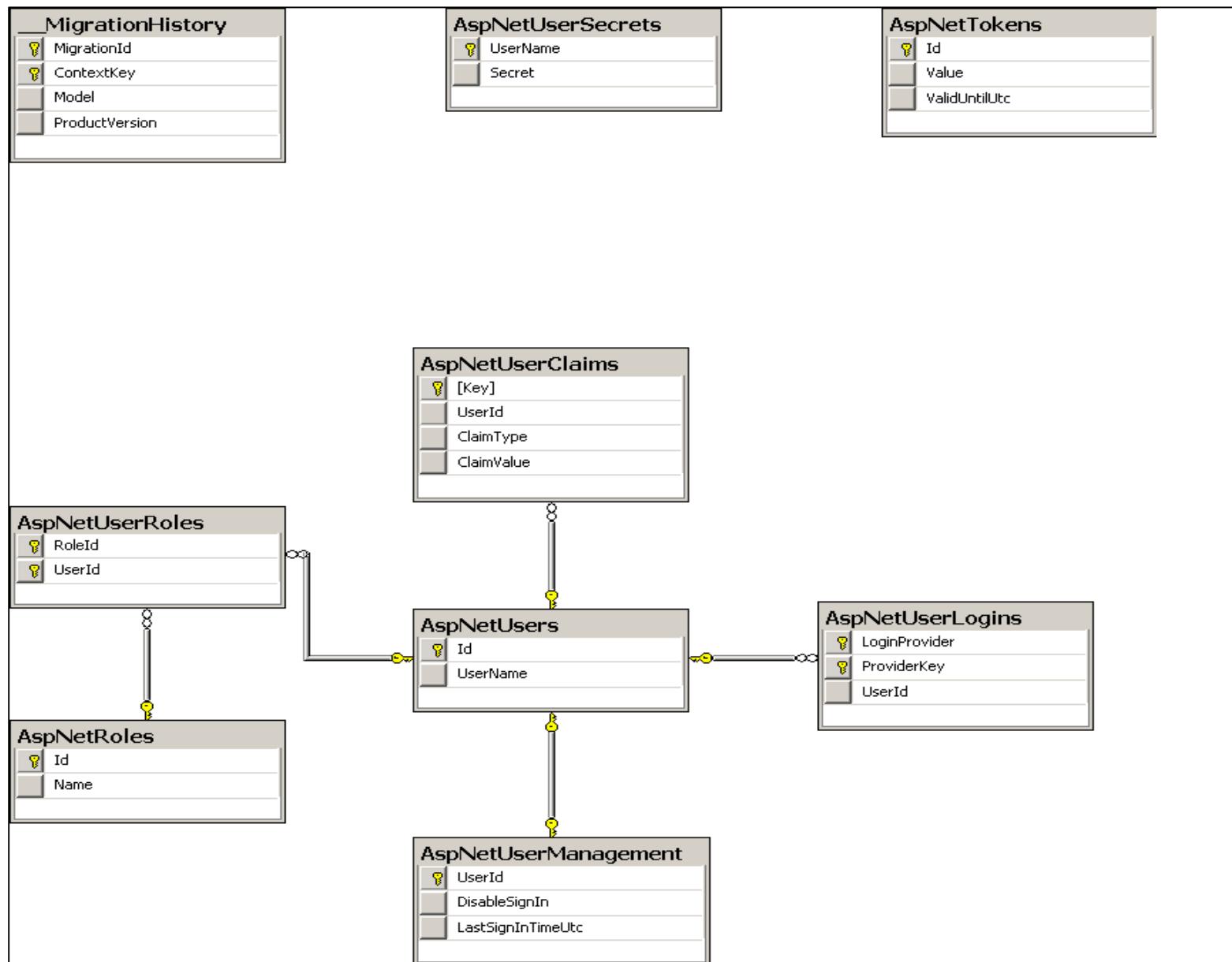


FIGURE 67 Fuel tax users diagram.

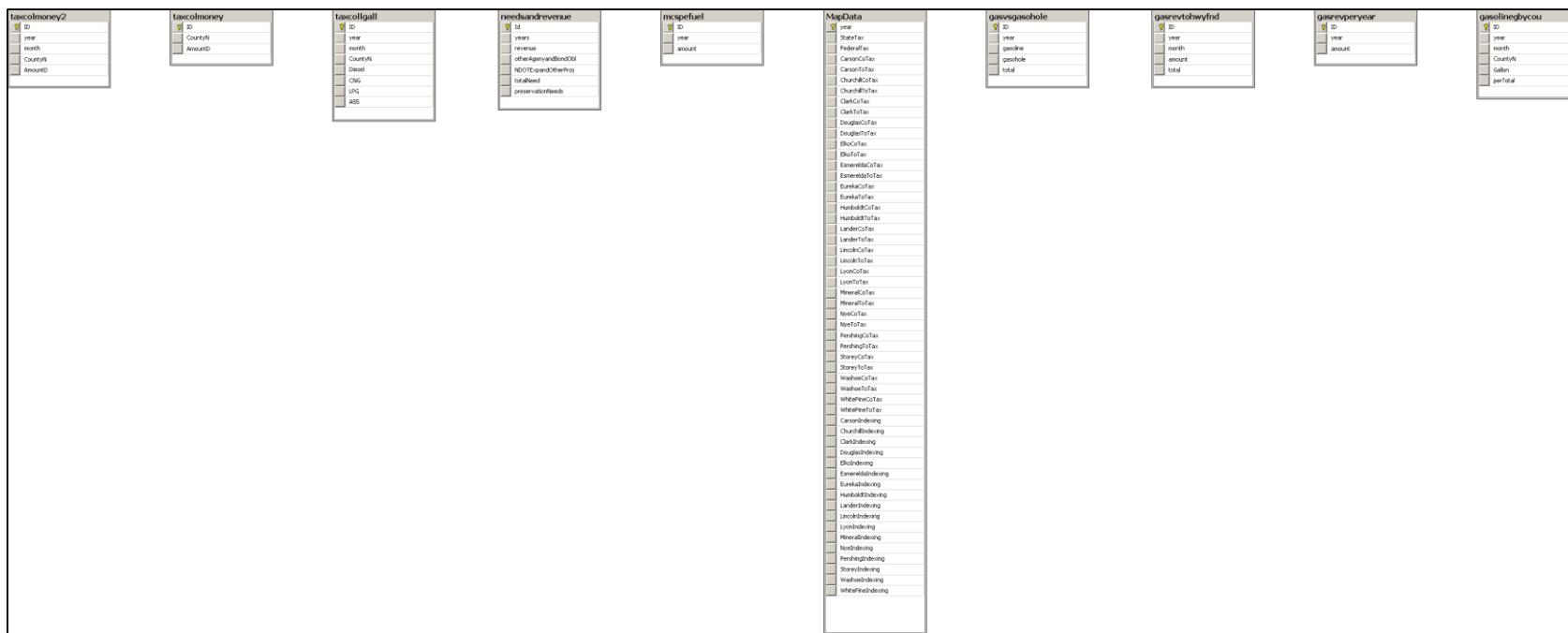


FIGURE 68 Fuel tax diagram.

APPENDIX B

DIAGRAM REPORT

Server	(local)
Author	UNLV - TRC
Created	13 August 2014 11:26
File Path	X:\Users\JeremyO\Documents\My Database Documentation\Fuel Tax Documentation-2014-08-13T11-26-40.docx

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 (local)
Fuel Tax

Databases(2)

-  ftapp
-  ftusers

Server Properties

Property	Value
Product	Microsoft SQL Server
Version	10.50.1617.0
Language	English (United States)
Platform	NT x64
Edition	Standard Edition (64-bit)
Processors	64
OS Version	6.1 (7601)
Physical Memory	262124
Is Clustered	False
Root Directory	C:\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL
Collation	SQL_Latin1_General_CI_AS

Server Settings

Property	Value
Default backup file path	C:\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL\Backup
Recovery Interval (minutes)	0
Default index fill factor	0
Default backup media retention	0
Compress Backup	False

Advanced Server Settings

Property	Value
Full text upgrade option	2
Locks	0
Nested triggers enabled	True
Allow triggers to fire others	True
Default language	English
Network packet size	4096
Default fulltext language LCID	1033
Two-digit year cutoff	2049
Remote login timeout	20
Cursor threshold	-1
Max text replication size	65536
Parallelism cost threshold	5
Scan for startup procs	False
Transform noise words	False
Blocked process threshold	0
Filestream access level	False
Optimize for ad hoc workloads	False

 **User databases**

Fuel Tax

Databases(2)

-  ftapp
-  ftusers

 <i>ftapp Database</i>
Fuel Tax

Database Properties

Property	Value
SQL Server Version	SQL Server 2008
Compatibility Level	SQL Server 2008
Database Encryption Enabled	False
Last backup time	-
Last log backup time	-
Creation date	Jul 14 2014
Users	6
Database size	4.25 MB
Unallocated space	1.08 MB

Database Options

Property	Value
Compatibility Level	100
Database collation	SQL_Latin1_General_CI_AS
Restrict access	MULTI_USER
Is read-only	False
Auto close	False
Auto shrink	False
Database status	ONLINE
In standby	False
Cleanly shutdown	False
Supplemental logging enabled	False
Snapshot isolation state	OFF
Read committed snapshot on	False
Recovery model	FULL
Page verify option	CHECKSUM
Auto create statistics	True
Auto update statistics	True
Auto update statistics asynchronously	False
ANSI NULL default	False
ANSI NULL enabled	False
ANSI padding enabled	False
ANSI warnings enabled	False

Arithmetic abort enabled	False
Concatenating NULL yields NULL	False
Numeric roundabort enabled	False
Quoted Identifier On	False
Recursive triggers enabled	False
Close cursors on commit	False
Local cursors by default	False
Fulltext enabled	True
Trustworthy	False
Database chaining	False
Forced parameterization	False
Master key encrypted by server	False
Published	False
Subscribed	False
Merge published	False
Is distribution database	False
Sync with backup	False
Service broker GUID	435731d9-c290-4c31-ac02-ba1efda37a3d
Service broker enabled	False
Log reuse wait	NOTHING
Date correlation	False
CDC enabled	False
Encrypted	False

Honor broker priority	False
Database owner	sa

Files

Name	Type	Size	File Name
ftapp	Data	3.00 MB	C:\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL\DATA\ftapp.mdf
ftapp_log	Log	1.25 MB	C:\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL\DATA\ftapp_log.ldf

 Tables
Fuel Tax

Objects

Name
dbo.gasolinegbycou Gasoline by county
dbo.gasrevperyear Gasoline revenue per year
dbo.gasrevtohwyfnd Gasoline revenue to highway fund
dbo.gasvsgasohole Gasoline vs gasohole
dbo.MapData Tax data by county for map
dbo.mcspefuel Special fuels
dbo.needsandrevenue Needs and revenue
dbo.taxcollgall Taxes collected by gallon
dbo.taxcolmoney Taxes collected in revenue
dbo.taxcolmoney2 Taxed collected in revenue 2

 [dbo].[gasolinegbycou]
Fuel Tax

MS_Description

Gasoline by county

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	1496
Created	2:33:23 PM Monday, July 14, 2014
Last Modified	2:33:23 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
 ID	ID	int	4	False	3430 - 1
	year	int	4	False	
	month	nvarchar(30)	60	False	
	CountyN	nvarchar(30)	60	False	
	Gallon	int	4	False	
	perTotal	int	4	False	

Indexes

Key	Name	Columns	Unique
 C	PK_gasolinegbycou_ID	ID	True

Extended Properties

Name	Value
MS_SSMA_SOURCE	fueltax.gasolinegbycou

SQL Script

```

CREATE TABLE [dbo].[gasolinegbycou]
(
    [ID] [int] NOT NULL IDENTITY(3430, 1),
    [year] [int] NOT NULL,
    [month] [nvarchar] (30) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [CountyN] [nvarchar] (30) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [Gallon] [int] NOT NULL,
    [perTotal] [int] NOT NULL
) ON [PRIMARY]
GO

ALTER TABLE [dbo].[gasolinegbycou] ADD CONSTRAINT [PK_gasolinegbycou_ID] PRIMARY KEY CLUSTERED
([ID]) ON [PRIMARY]
GO

EXEC sp_addextendedproperty N'MS_Description', N'Gasoline by county', 'SCHEMA', N'dbo', 'TABLE',
N'gasolinegbycou', NULL, NULL
GO

EXEC sp_addextendedproperty N'MS_SSMA_SOURCE', N'fueltax.gasolinegbycou', 'SCHEMA', N'dbo',
'TABLE', N'gasolinegbycou', NULL, NULL
GO

```

 [dbo].[gasrevperyear]
Fuel Tax

MS_Description

Gasoline revenue per year

Properties

Property	Value
Row Count (~)	41
Created	2:33:23 PM Monday, July 14, 2014
Last Modified	2:33:23 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	ID	int	4	False
	year	int	4	False
	amount	int	4	False

Indexes

Key	Name	Columns	Unique
 C	PK_gasrevperyear_ID	ID	True

Extended Properties

Name	Value
MS_SSMA_SOURCE	fueltax.gasrevperyear

SQL Script

```

CREATE TABLE [dbo].[gasrevperyear]
(
    [ID] [int] NOT NULL,
    [year] [int] NOT NULL,
    [amount] [int] NOT NULL
) ON [PRIMARY]
GO

ALTER TABLE [dbo].[gasrevperyear] ADD CONSTRAINT [PK_gasrevperyear_ID] PRIMARY KEY CLUSTERED
([ID]) ON [PRIMARY]
GO

EXEC sp_addextendedproperty N'MS_Description', N'Gasoline revenue per year', 'SCHEMA', N'dbo',
'TABLE', N'gasrevperyear', NULL, NULL
GO

EXEC sp_addextendedproperty N'MS_SSMA_SOURCE', N'fueltax.gasrevperyear', 'SCHEMA', N'dbo',
'TABLE', N'gasrevperyear', NULL, NULL
GO

```

 [dbo].[gasrevtohwyfnd]
Fuel Tax

MS_Description

Gasoline revenue to highway fund

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	492
Created	2:33:22 PM Monday, July 14, 2014
Last Modified	2:33:22 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
	ID	int	4	False
	year	int	4	False
	month	varchar(25)	25	False
	amount	int	4	False
	total	int	4	False

Indexes

Key	Name	Columns	Unique
	PK_gasrevtohwyfnd_ID	ID	True

Extended Properties

Name	Value
MS_SSMA_SOURCE	fueltax.gasrevtohwyfnd

SQL Script

```

CREATE TABLE [dbo].[gasrevtohwyfnd]
(
    [ID] [int] NOT NULL,
    [year] [int] NOT NULL,
    [month] [varchar] (25) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [amount] [int] NOT NULL,
    [total] [int] NOT NULL
) ON [PRIMARY]

GO

ALTER TABLE [dbo].[gasrevtohwyfnd] ADD CONSTRAINT [PK_gasrevtohwyfnd_ID] PRIMARY KEY CLUSTERED
([ID]) ON [PRIMARY]

GO

EXEC sp_addextendedproperty N'MS_Description', N'Gasoline revenue to highway fund', 'SCHEMA',
N'dbo', 'TABLE', N'gasrevtohwyfnd', NULL, NULL

GO

EXEC sp_addextendedproperty N'MS_SSMA_SOURCE', N'fueltax.gasrevtohwyfnd', 'SCHEMA', N'dbo',
'TABLE', N'gasrevtohwyfnd', NULL, NULL

GO

```

 [dbo].[gasvsgasohole]
Fuel Tax

MS_Description

Gasoline vs gasohole

Properties

Property	Value
Row Count (~)	19
Created	2:33:22 PM Monday, July 14, 2014
Last Modified	2:33:22 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	ID	int	4	False
	year	int	4	False
	gasoline	int	4	False
	gasohole	int	4	False
	total	int	4	False

Indexes

Key	Name	Columns	Unique
 C	PK_gasvsgasohole_ID	ID	True

Extended Properties

Name	Value
MS_SSMA_SOURCE	fueltax.gasvsgasohole

SQL Script

```

CREATE TABLE [dbo].[gasvsgasohole]
(
    [ID] [int] NOT NULL,
    [year] [int] NOT NULL,
    [gasoline] [int] NOT NULL,
    [gasohole] [int] NOT NULL,
    [total] [int] NOT NULL
) ON [PRIMARY]
GO

ALTER TABLE [dbo].[gasvsgasohole] ADD CONSTRAINT [PK_gasvsgasohole_ID] PRIMARY KEY CLUSTERED
([ID]) ON [PRIMARY]
GO

EXEC sp_addextendedproperty N'MS_Description', N'Gasoline vs gasohole', 'SCHEMA', N'dbo',
'TABLE', N'gasvsgasohole', NULL, NULL
GO

EXEC sp_addextendedproperty N'MS_SSMA_SOURCE', N'fueltax.gasvsgasohole', 'SCHEMA', N'dbo',
'TABLE', N'gasvsgasohole', NULL, NULL
GO

```

 [dbo].[MapData]
Fuel Tax

MS_Description

Tax data by county for map

Properties

Property	Value
Row Count (~)	4
Created	2:33:22 PM Monday, July 14, 2014
Last Modified	2:33:22 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	year	int	4	False
	StateTax	decimal(18,2)	9	True
	FederalTax	decimal(18,2)	9	True
	CarsonCoTax	decimal(18,2)	9	True
	CarsonToTax	decimal(18,2)	9	True
	ChurchillCoTax	decimal(18,2)	9	True
	ChurchillToTax	decimal(18,2)	9	True
	ClarkCoTax	decimal(18,2)	9	True
	ClarkToTax	decimal(18,2)	9	True
	DouglasCoTax	decimal(18,2)	9	True
	DouglasToTax	decimal(18,2)	9	True
	ElkoCoTax	decimal(18,2)	9	True
	ElkoToTax	decimal(18,2)	9	True
	EsmereldaCoTax	decimal(18,2)	9	True
	EsmereldaToTax	decimal(18,2)	9	True
	EurekaCoTax	decimal(18,2)	9	True
	EurekaToTax	decimal(18,2)	9	True
	HumboldtCoTax	decimal(18,2)	9	True
	HumboldtToTax	decimal(18,2)	9	True
	LanderCoTax	decimal(18,2)	9	True
	LanderToTax	decimal(18,2)	9	True

	LincolnCoTax	decimal(18,2)	9	True
	LincolnToTax	decimal(18,2)	9	True
	LyonCoTax	decimal(18,2)	9	True
	LyonToTax	decimal(18,2)	9	True
	MineralCoTax	decimal(18,2)	9	True
	MineralToTax	decimal(18,2)	9	True
	NyeCoTax	decimal(18,2)	9	True
	NyeToTax	decimal(18,2)	9	True
	PershingCoTax	decimal(18,2)	9	True
	PershingToTax	decimal(18,2)	9	True
	StoreyCoTax	decimal(18,2)	9	True
	StoreyToTax	decimal(18,2)	9	True
	WashoeCoTax	decimal(18,2)	9	True
	WashoeToTax	decimal(18,2)	9	True
	WhitePineCoTax	decimal(18,2)	9	True
	WhitePineToTax	decimal(18,2)	9	True
	CarsonIndexing	decimal(18,2)	9	True
	ChurchillIndexing	decimal(18,2)	9	True
	ClarkIndexing	decimal(18,2)	9	True
	DouglasIndexing	decimal(18,2)	9	True
	ElkoIndexing	decimal(18,2)	9	True
	EsmereldaIndexing	decimal(18,2)	9	True
	EurekaIndexing	decimal(18,2)	9	True

	HumboldtIndexing	decimal(18,2)	9	True
	LanderIndexing	decimal(18,2)	9	True
	LincolnIndexing	decimal(18,2)	9	True
	LyonIndexing	decimal(18,2)	9	True
	MineralIndexing	decimal(18,2)	9	True
	NyeIndexing	decimal(18,2)	9	True
	PershingIndexing	decimal(18,2)	9	True
	StoreyIndexing	decimal(18,2)	9	True
	WashoeIndexing	decimal(18,2)	9	True
	WhitePineIndexing	decimal(18,2)	9	True

Indexes

Key	Name	Columns	Unique
	PK__MapData__809A238A0AD2A005	year	True

SQL Script

```
CREATE TABLE [dbo].[MapData]
(
[year] [int] NOT NULL,
[StateTax] [decimal] (18, 2) NULL,
[FederalTax] [decimal] (18, 2) NULL,
[CarsonCoTax] [decimal] (18, 2) NULL,
[CarsonToTax] [decimal] (18, 2) NULL,
[ChurchillCoTax] [decimal] (18, 2) NULL,
[ChurchillToTax] [decimal] (18, 2) NULL,
```

```
[ClarkCoTax] [decimal] (18, 2) NULL,  
[ClarkToTax] [decimal] (18, 2) NULL,  
[DouglasCoTax] [decimal] (18, 2) NULL,  
[DouglasToTax] [decimal] (18, 2) NULL,  
[ElkoCoTax] [decimal] (18, 2) NULL,  
[ElkoToTax] [decimal] (18, 2) NULL,  
[EsmereldaCoTax] [decimal] (18, 2) NULL,  
[EsmereldaToTax] [decimal] (18, 2) NULL,  
[EurekaCoTax] [decimal] (18, 2) NULL,  
[EurekaToTax] [decimal] (18, 2) NULL,  
[HumboldtCoTax] [decimal] (18, 2) NULL,  
[HumboldtToTax] [decimal] (18, 2) NULL,  
[LanderCoTax] [decimal] (18, 2) NULL,  
[LanderToTax] [decimal] (18, 2) NULL,  
[LincolnCoTax] [decimal] (18, 2) NULL,  
[LincolnToTax] [decimal] (18, 2) NULL,  
[LyonCoTax] [decimal] (18, 2) NULL,  
[LyonToTax] [decimal] (18, 2) NULL,  
[MineralCoTax] [decimal] (18, 2) NULL,  
[MineralToTax] [decimal] (18, 2) NULL,  
[NyeCoTax] [decimal] (18, 2) NULL,  
[NyeToTax] [decimal] (18, 2) NULL,  
[PershingCoTax] [decimal] (18, 2) NULL,  
[PershingToTax] [decimal] (18, 2) NULL,  
[StoreyCoTax] [decimal] (18, 2) NULL,  
[StoreyToTax] [decimal] (18, 2) NULL,  
[WashoeCoTax] [decimal] (18, 2) NULL,  
[WashoeToTax] [decimal] (18, 2) NULL,  
[WhitePineCoTax] [decimal] (18, 2) NULL,  
[WhitePineToTax] [decimal] (18, 2) NULL,
```

```
[CarsonIndexing] [decimal] (18, 2) NULL,  
[ChurchillIndexing] [decimal] (18, 2) NULL,  
[ClarkIndexing] [decimal] (18, 2) NULL,  
[DouglasIndexing] [decimal] (18, 2) NULL,  
[ElkoIndexing] [decimal] (18, 2) NULL,  
[EsmeraldaIndexing] [decimal] (18, 2) NULL,  
[EurekaIndexing] [decimal] (18, 2) NULL,  
[HumboldtIndexing] [decimal] (18, 2) NULL,  
[LanderIndexing] [decimal] (18, 2) NULL,  
[LincolnIndexing] [decimal] (18, 2) NULL,  
[LyonIndexing] [decimal] (18, 2) NULL,  
[MineralIndexing] [decimal] (18, 2) NULL,  
[NyeIndexing] [decimal] (18, 2) NULL,  
[PershingIndexing] [decimal] (18, 2) NULL,  
[StoreyIndexing] [decimal] (18, 2) NULL,  
[WashoeIndexing] [decimal] (18, 2) NULL,  
[WhitePineIndexing] [decimal] (18, 2) NULL  
) ON [PRIMARY]  
  
GO  
  
ALTER TABLE [dbo].[MapData] ADD CONSTRAINT [PK__MapData__809A238A0AD2A005] PRIMARY KEY CLUSTERED  
([year]) ON [PRIMARY]  
  
GO  
  
EXEC sp_addextendedproperty N'MS_Description', N'Tax data by county for map', 'SCHEMA', N'dbo',  
'TABLE', N'MapData', NULL, NULL  
  
GO
```

 [dbo].[mcspefuel]
Fuel Tax

MS_Description

Special fuels

Properties

Property	Value
Row Count (~)	73
Created	2:33:22 PM Monday, July 14, 2014
Last Modified	2:33:22 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	ID	int	4	False
	year	int	4	False
	amount	int	4	False

Indexes

Key	Name	Columns	Unique
 C	PK_mcspefuel_ID	ID	True

Extended Properties

Name	Value
MS_SSMA_SOURCE	fueltax.mcspefuel

SQL Script

```

CREATE TABLE [dbo].[mcspefuel]
(
    [ID] [int] NOT NULL,
    [year] [int] NOT NULL,
    [amount] [int] NOT NULL
) ON [PRIMARY]
GO

ALTER TABLE [dbo].[mcspefuel] ADD CONSTRAINT [PK_mcspefuel_ID] PRIMARY KEY CLUSTERED ([ID]) ON
[PRIMARY]
GO

EXEC sp_addextendedproperty N'MS_Description', N'Special fuels', 'SCHEMA', N'dbo', 'TABLE',
N'mcspefuel', NULL, NULL
GO

EXEC sp_addextendedproperty N'MS_SSMA_SOURCE', N'fueltax.mcspefuel', 'SCHEMA', N'dbo', 'TABLE',
N'mcspefuel', NULL, NULL
GO

```

 [dbo].[needsandrevenue]
Fuel Tax

MS_Description

Needs and revenue

Properties

Property	Value
Row Count (~)	7
Created	2:33:22 PM Monday, July 14, 2014
Last Modified	2:33:22 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
 C	Id	int	4	False	1 - 1
	years	int	4	False	
	revenue	decimal(18,0)	9	False	
	otherAgenyandBondObl	decimal(18,0)	9	False	
	NDOTExpandOtherProj	decimal(18,0)	9	False	
	totalNeed	decimal(18,0)	9	False	
	preservationNeeds	decimal(18,0)	9	False	

Indexes

Key	Name	Columns	Unique
 C	PK__needsand__3214EC070519C6AF	Id	True

SQL Script

```

CREATE TABLE [dbo].[needsandrevenue]
(
    [Id] [int] NOT NULL IDENTITY(1, 1),
    [years] [int] NOT NULL,
    [revenue] [decimal] (18, 0) NOT NULL,
    [otherAgenyandBondObl] [decimal] (18, 0) NOT NULL,
    [NDOTEXpandOtherProj] [decimal] (18, 0) NOT NULL,
    [totalNeed] [decimal] (18, 0) NOT NULL,
    [preservationNeeds] [decimal] (18, 0) NOT NULL
) ON [PRIMARY]
GO

ALTER TABLE [dbo].[needsandrevenue] ADD CONSTRAINT [PK__needsand__3214EC070519C6AF] PRIMARY KEY
CLUSTERED ([Id]) ON [PRIMARY]
GO

EXEC sp_addextendedproperty N'MS_Description', N'Needs and revenue', 'SCHEMA', N'dbo', 'TABLE',
N'needsandrevenue', NULL, NULL
GO

```

 [dbo].[taxcollgall]
Fuel Tax

MS_Description

Taxes collected by gallon

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	697
Created	2:33:22 PM Monday, July 14, 2014
Last Modified	2:33:22 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
 C	ID	int	4	False	1420 - 1
	year	int	4	False	
	month	varchar(30)	30	False	
	CountyN	char(30)	30	False	
	Diesel	int	4	False	
	CNG	int	4	False	
	LPG	int	4	False	
	A55	int	4	False	

Indexes

Key	Name	Columns	Unique
	PK_taxcollgall_ID	ID	True

Extended Properties

Name	Value
MS_SSMA_SOURCE	fueltax.taxcollgall

SQL Script

```

CREATE TABLE [dbo].[taxcollgall]
(
    [ID] [int] NOT NULL IDENTITY(1420, 1),
    [year] [int] NOT NULL,
    [month] [varchar] (30) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [CountyN] [char] (30) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [Diesel] [int] NOT NULL,
    [CNG] [int] NOT NULL,
    [LPG] [int] NOT NULL,
    [A55] [int] NOT NULL
) ON [PRIMARY]

GO

ALTER TABLE [dbo].[taxcollgall] ADD CONSTRAINT [PK_taxcollgall_ID] PRIMARY KEY CLUSTERED ([ID])
ON [PRIMARY]

GO

EXEC sp_addextendedproperty N'MS_Description', N'Taxes collected by gallon', 'SCHEMA', N'dbo',
'TABLE', N'taxcollgall', NULL, NULL

GO

EXEC sp_addextendedproperty N'MS_SSMA_SOURCE', N'fueltax.taxcollgall', 'SCHEMA', N'dbo', 'TABLE',
N'taxcollgall', NULL, NULL

GO

```

 [dbo].[taxcolmoney]
Fuel Tax

MS_Description

Taxes collected in revenue

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	66
Created	2:33:22 PM Monday, July 14, 2014
Last Modified	2:33:22 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	ID	int	4	False
	CountyN	char(30)	30	False
	AmountD	int	4	False

Indexes

Key	Name	Columns	Unique
	PK_taxcolmoney_ID	ID	True

Extended Properties

Name	Value
MS_SSMA_SOURCE	fueltax.taxcolmoney

SQL Script

```

CREATE TABLE [dbo].[taxcolmoney]
(
    [ID] [int] NOT NULL,
    [CountyN] [char] (30) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [AmountD] [int] NOT NULL
) ON [PRIMARY]

GO

ALTER TABLE [dbo].[taxcolmoney] ADD CONSTRAINT [PK_taxcolmoney_ID] PRIMARY KEY CLUSTERED ([ID])
ON [PRIMARY]

GO

EXEC sp_addextendedproperty N'MS_Description', N'Taxes collected in revenue', 'SCHEMA', N'dbo',
'TABLE', N'taxcolmoney', NULL, NULL

GO

EXEC sp_addextendedproperty N'MS_SSMA_SOURCE', N'fueltax.taxcolmoney', 'SCHEMA', N'dbo', 'TABLE',
N'taxcolmoney', NULL, NULL

GO

```

 [dbo].[taxcolmoney2]
Fuel Tax

MS_Description

Taxed collected in revenue 2

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	1139
Created	2:33:21 PM Monday, July 14, 2014
Last Modified	2:33:21 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls	Identity
 C	ID	int	4	False	10138 - 1
	year	int	4	False	
	month	varchar(30)	30	False	
	CountyN	varchar(30)	30	False	
	AmountD	int	4	False	

Indexes

Key	Name	Columns	Unique
 C	PK_taxcolmoney2_ID	ID	True

Extended Properties

Name	Value
MS_SSMA_SOURCE	fueltax.taxcolmoney2

SQL Script

```

CREATE TABLE [dbo].[taxcolmoney2]
(
    [ID] [int] NOT NULL IDENTITY(10138, 1),
    [year] [int] NOT NULL,
    [month] [varchar] (30) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [CountyN] [varchar] (30) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [AmountD] [int] NOT NULL
) ON [PRIMARY]

GO

ALTER TABLE [dbo].[taxcolmoney2] ADD CONSTRAINT [PK_taxcolmoney2_ID] PRIMARY KEY CLUSTERED
([ID]) ON [PRIMARY]

GO

EXEC sp_addextendedproperty N'MS_Description', N'Taxed collected in revenue 2', 'SCHEMA', N'dbo',
'TABLE', N'taxcolmoney2', NULL, NULL

GO

EXEC sp_addextendedproperty N'MS_SSMA_SOURCE', N'fueltax.taxcolmoney2', 'SCHEMA', N'dbo',
'TABLE', N'taxcolmoney2', NULL, NULL

GO

```

 <i>ftusers Database</i>
Fuel Tax

Database Properties

Property	Value
SQL Server Version	SQL Server 2008
Compatibility Level	SQL Server 2008
Database Encryption Enabled	False
Last backup time	-
Last log backup time	-
Creation date	Jul 14 2014
Users	6
Database size	4.00 MB
Unallocated space	1.47 MB

Database Options

Property	Value
Compatibility Level	100
Database collation	SQL_Latin1_General_CI_AS
Restrict access	MULTI_USER
Is read-only	False
Auto close	False
Auto shrink	False
Database status	ONLINE
In standby	False
Cleanly shutdown	False
Supplemental logging enabled	False
Snapshot isolation state	OFF
Read committed snapshot on	False
Recovery model	FULL
Page verify option	CHECKSUM
Auto create statistics	True
Auto update statistics	True
Auto update statistics asynchronously	False
ANSI NULL default	False
ANSI NULL enabled	False
ANSI padding enabled	False
ANSI warnings enabled	False

Arithmetic abort enabled	False
Concatenating NULL yields NULL	False
Numeric roundabort enabled	False
Quoted Identifier On	False
Recursive triggers enabled	False
Close cursors on commit	False
Local cursors by default	False
Fulltext enabled	True
Trustworthy	False
Database chaining	False
Forced parameterization	False
Master key encrypted by server	False
Published	False
Subscribed	False
Merge published	False
Is distribution database	False
Sync with backup	False
Service broker GUID	fbfbb5e3-47d3-46d7-94d5-d7f67b5ca734
Service broker enabled	False
Log reuse wait	NOTHING
Date correlation	False
CDC enabled	False
Encrypted	False

Honor broker priority	False
Database owner	sa

Files

Name	Type	Size	File Name
ftusers	Data	3.0 0 MB	C:\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL\DATA\ftusers.mdf
ftusers_log	Log	1.0 0 MB	C:\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL\DATA\ftusers_log.l df

 Tables
Fuel Tax

Objects

Name
dbo.__MigrationHistory User table migration history
dbo.AspNetRoles Available Roles
dbo.AspNetTokens Auth tokens
dbo.AspNetUserClaims User claims
dbo.AspNetUserLogins User logins
dbo.AspNetUserManagement User management
dbo.AspNetUserRoles User roles
dbo.AspNetUsers User table
dbo.AspNetUserSecrets User secrets

 [dbo].[__MigrationHistory]
Fuel Tax

MS_Description

User table migration history

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	1
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	MigrationId	nvarchar(150)	300	False
 C	ContextKey	nvarchar(300)	600	False
	Model	varbinary(max)	max	False
	ProductVersion	nvarchar(32)	64	False

Indexes

Key	Name	Columns	Unique
 C	PK_dbo.__MigrationHistory	MigrationId, ContextKey	True

SQL Script

```
CREATE TABLE [dbo].[__MigrationHistory]
(
    [MigrationId] [nvarchar] (150) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [ContextKey] [nvarchar] (300) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [Model] [varbinary] (max) NOT NULL,
    [ProductVersion] [nvarchar] (32) COLLATE SQL_Latin1_General_CI_AS NOT NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

ALTER TABLE [dbo].[__MigrationHistory] ADD CONSTRAINT [PK_dbo.__MigrationHistory] PRIMARY KEY
CLUSTERED ([MigrationId], [ContextKey]) ON [PRIMARY]

GO

EXEC sp_addextendedproperty N'MS_Description', N'User table migration history', 'SCHEMA', N'dbo',
'TABLE', N'__MigrationHistory', NULL, NULL

GO
```

 [dbo].[AspNetRoles]
Fuel Tax

MS_Description

Available Roles

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	0
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	Id	nvarchar(128)	256	False
	Name	nvarchar(max)	max	True

Indexes

Key	Name	Columns	Unique
 C	PK_dbo.AspNetRoles	Id	True

SQL Script

```
CREATE TABLE [dbo].[AspNetRoles]
```

```
(  
    [Id] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,  
    [Name] [nvarchar] (max) COLLATE SQL_Latin1_General_CI_AS NULL  
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]  
  
GO  
  
ALTER TABLE [dbo].[AspNetRoles] ADD CONSTRAINT [PK_dbo.AspNetRoles] PRIMARY KEY CLUSTERED ([Id])  
ON [PRIMARY]  
  
GO  
  
EXEC sp_addextendedproperty N'MS_Description', N'Available Roles', 'SCHEMA', N'dbo', 'TABLE',  
N'AspNetRoles', NULL, NULL  
  
GO
```

 [dbo].[AspNetTokens]
Fuel Tax

MS_Description

Auth tokens

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	0
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	Id	nvarchar(128)	256	False
	Value	nvarchar(max)	max	True
	ValidUntilUtc	datetime	8	False

Indexes

Key	Name	Columns	Unique
 C	PK_dbo.AspNetTokens	Id	True

SQL Script

```
CREATE TABLE [dbo].[AspNetTokens]
(
    [Id] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [Value] [nvarchar] (max) COLLATE SQL_Latin1_General_CI_AS NULL,
    [ValidUntilUtc] [datetime] NOT NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

ALTER TABLE [dbo].[AspNetTokens] ADD CONSTRAINT [PK_dbo.AspNetTokens] PRIMARY KEY CLUSTERED
([Id]) ON [PRIMARY]

GO

EXEC sp_addextendedproperty N'MS_Description', N'Auth tokens', 'SCHEMA', N'dbo', 'TABLE', N'AspNetTokens', NULL, NULL

GO
```

 [dbo].[AspNetUserClaims]
Fuel Tax

MS_Description

User claims

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	0
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	Key	nvarchar(128)	256	False
	UserId	nvarchar(128)	256	True
	ClaimType	nvarchar(max)	max	True
	ClaimValue	nvarchar(max)	max	True

Indexes

Key	Name	Columns	Unique
 C	PK_dbo.AspNetUserClaims	Key	True

Foreign Keys

Name	Columns
FK_dbo.AspNetUserClaims_dbo.AspNetUsers_UserId	UserId->[dbo].[AspNetUsers].[Id]

SQL Script

```

CREATE TABLE [dbo].[AspNetUserClaims]
(
    [Key] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [UserId] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NULL,
    [ClaimType] [nvarchar] (max) COLLATE SQL_Latin1_General_CI_AS NULL,
    [ClaimValue] [nvarchar] (max) COLLATE SQL_Latin1_General_CI_AS NULL
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]

GO

ALTER TABLE [dbo].[AspNetUserClaims] ADD CONSTRAINT [PK_dbo.AspNetUserClaims] PRIMARY KEY
CLUSTERED ([Key]) ON [PRIMARY]

GO

ALTER TABLE [dbo].[AspNetUserClaims] ADD CONSTRAINT [FK_dbo.AspNetUserClaims_dbo.AspNetUsers_-
UserId] FOREIGN KEY ([UserId]) REFERENCES [dbo].[AspNetUsers] ([Id])

GO

EXEC sp_addextendedproperty N'MS_Description', N'User claims', 'SCHEMA', N'dbo', 'TABLE', N'Asp-
NetUserClaims', NULL, NULL

GO

```

 [dbo].[AspNetUserLogins]
Fuel Tax

MS_Description

User logins

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	1
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	LoginProvider	nvarchar(128)	256	False
 C	ProviderKey	nvarchar(128)	256	False
 C	UserId	nvarchar(128)	256	True

Indexes

Key	Name	Columns	Unique
 C	PK_dbo.AspNetUserLogins	LoginProvider, ProviderKey	True

Foreign Keys

Name	Columns
FK_dbo.AspNetUserLogins_dbo.AspNetUsers_UserId	UserId->[dbo].[AspNetUsers].[Id]

SQL Script

```

CREATE TABLE [dbo].[AspNetUserLogins]
(
    [LoginProvider] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [ProviderKey] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [UserId] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NULL
) ON [PRIMARY]

GO

ALTER TABLE [dbo].[AspNetUserLogins] ADD CONSTRAINT [PK_dbo.AspNetUserLogins] PRIMARY KEY
CLUSTERED ([LoginProvider], [ProviderKey]) ON [PRIMARY]

GO

ALTER TABLE [dbo].[AspNetUserLogins] ADD CONSTRAINT [FK_dbo.AspNetUserLogins_dbo.AspNetUsers_UserId]
FOREIGN KEY ([UserId]) REFERENCES [dbo].[AspNetUsers] ([Id])

GO

EXEC sp_addextendedproperty N'MS_Description', N'User logins', 'SCHEMA', N'dbo', 'TABLE', N'AspNetUserLogins', NULL, NULL

GO

```

 [dbo].[AspNetUserManagement]
Fuel Tax

MS_Description

User management

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	5
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
	UserId	nvarchar(128)	256	False
	DisableSignIn	bit	1	False
	LastSignInTimeUtc	datetime	8	False

Indexes

Key	Name	Columns	Unique
	PK_dbo.AspNetUserManagement	UserId	True

Foreign Keys

Name	Columns
FK_dbo.AspNetUserManagement_dbo.AspNetUsers_UserId	UserId->[dbo].[AspNetUsers].[Id]

SQL Script

```

CREATE TABLE [dbo].[AspNetUserManagement]
(
    [UserId] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [DisableSignIn] [bit] NOT NULL,
    [LastSignInTimeUtc] [datetime] NOT NULL
) ON [PRIMARY]
GO

ALTER TABLE [dbo].[AspNetUserManagement] ADD CONSTRAINT [PK_dbo.AspNetUserManagement] PRIMARY KEY CLUSTERED ([UserId]) ON [PRIMARY]
GO

ALTER TABLE [dbo].[AspNetUserManagement] ADD CONSTRAINT [FK_dbo.AspNetUserManagement_dbo.AspNetUsers_UserId] FOREIGN KEY ([UserId]) REFERENCES [dbo].[AspNetUsers] ([Id])
GO

EXEC sp_addextendedproperty N'MS_Description', N'User management', 'SCHEMA', N'dbo', 'TABLE', N'AspNetUserManagement', NULL, NULL
GO

```

 [dbo].[AspNetUserRoles]
Fuel Tax

MS_Description

User roles

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	0
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
	RoleId	nvarchar(128)	256	False
	UserId	nvarchar(128)	256	False

Indexes

Key	Name	Columns	Unique
	PK_dbo.AspNetUserRoles	RoleId, UserId	True

Foreign Keys

Name	Delete	Columns
FK_dbo.AspNetUserRoles_dboAspNetRolesRoleId	Cascade	RoleId->[dbo].[AspNetRoles].[Id]
FK_dbo.AspNetUserRoles_dboAspNetUsersUserId	Cascade	UserId->[dbo].[AspNetUsers].[Id]

SQL Script

```

CREATE TABLE [dbo].[AspNetUserRoles]
(
    [RoleId] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,
    [UserId] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL
) ON [PRIMARY]

GO

ALTER TABLE [dbo].[AspNetUserRoles] ADD CONSTRAINT [PK_dbo.AspNetUserRoles] PRIMARY KEY CLUSTERED
([RoleId], [UserId]) ON [PRIMARY]

GO

ALTER TABLE [dbo].[AspNetUserRoles] ADD CONSTRAINT [FK_dbo.AspNetUserRoles_dbo.AspNetRoles_RoleId]
FOREIGN KEY ([RoleId]) REFERENCES [dbo].[AspNetRoles] ([Id]) ON DELETE CASCADE

GO

ALTER TABLE [dbo].[AspNetUserRoles] ADD CONSTRAINT [FK_dbo.AspNetUserRoles_dbo.AspNetUsers_UserId]
FOREIGN KEY ([UserId]) REFERENCES [dbo].[AspNetUsers] ([Id]) ON DELETE CASCADE

GO

EXEC sp_addextendedproperty N'MS_Description', N'User roles', 'SCHEMA', N'dbo', 'TABLE', N'AspNetUserRoles', NULL, NULL

```

 [dbo].[AspNetUsers]
Fuel Tax

MS_Description

User table

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	5
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
 C	Id	nvarchar(128)	256	False
	UserName	nvarchar(max)	max	True

Indexes

Key	Name	Columns	Unique
 C	PK_dbo.AspNetUsers	Id	True

SQL Script

```
CREATE TABLE [dbo].[AspNetUsers]
```

```
(  
  
[Id] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,  
  
[UserName] [nvarchar] (max) COLLATE SQL_Latin1_General_CI_AS NULL  
 ) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]  
  
GO  
  
ALTER TABLE [dbo].[AspNetUsers] ADD CONSTRAINT [PK_dbo.AspNetUsers] PRIMARY KEY CLUSTERED ([Id])  
ON [PRIMARY]  
  
GO  
  
EXEC sp_addextendedproperty N'MS_Description', N'User table', 'SCHEMA', N'dbo', 'TABLE', N'Asp-  
NetUsers', NULL, NULL  
  
GO
```

 [dbo].[AspNetUserSecrets]
Fuel Tax

MS_Description

User secrets

Properties

Property	Value
Collation	SQL_Latin1_General_CI_AS
Row Count (~)	5
Created	2:33:11 PM Monday, July 14, 2014
Last Modified	2:33:11 PM Monday, July 14, 2014

Columns

Key	Name	Data Type	Max Length (Bytes)	Allow Nulls
	UserName	nvarchar(128)	256	False
	Secret	nvarchar(max)	max	True

Indexes

Key	Name	Columns	Unique
	PK_dbo.AspNetUserSecrets	UserName	True

SQL Script

```
CREATE TABLE [dbo].[AspNetUserSecrets]
```

```
(  
  
[UserName] [nvarchar] (128) COLLATE SQL_Latin1_General_CI_AS NOT NULL,  
  
[Secret] [nvarchar] (max) COLLATE SQL_Latin1_General_CI_AS NULL  
 ) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]  
  
GO  
  
ALTER TABLE [dbo].[AspNetUserSecrets] ADD CONSTRAINT [PK_dbo.AspNetUserSecrets] PRIMARY KEY  
CLUSTERED ([UserName]) ON [PRIMARY]  
  
GO  
  
EXEC sp_addextendedproperty N'MS_Description', N'User secrets', 'SCHEMA', N'dbo', 'TABLE', N'Asp-  
NetUserSecrets', NULL, NULL  
  
GO
```

 Users
Fuel Tax

Objects

Name
apps_
veapp

 <i>apps_</i>
Fuel Tax

Properties

Property	Value
Type	SqlUser
Login Name	apps
Default Schema	dbo

Database Level Permissions

Type	Action
CONNECT	Grant

SQL Script

```
IF NOT EXISTS (SELECT * FROM master.dbo.syslogins WHERE loginname = N'apps')

CREATE LOGIN [apps] WITH PASSWORD = 'p@ssw0rd'

GO

CREATE USER [apps_] FOR LOGIN [apps]

GO
```

 veapp
Fuel Tax

Properties

Property	Value
Type	SqlUser
Login Name	veapp
Default Schema	dbo

Database Level Permissions

Type	Action
CONNECT	Grant

SQL Script

```
IF NOT EXISTS (SELECT * FROM master.dbo.syslogins WHERE loginname = N'veapp')

CREATE LOGIN [veapp] WITH PASSWORD = 'p@ssw0rd'

GO

CREATE USER [veapp] FOR LOGIN [veapp]

GO
```

 Database Roles

Fuel Tax

Objects

Name
db_accessadmin
db_backupoperator
db_datareader
db_datawriter
db_ddladmin
db_denydatareader
db_denydatawriter
db_owner
db_securityadmin
public

 db_accessadmin

Fuel Tax

Properties

Property	Value
Owner	dbo

 db_backupoperator

Fuel Tax

Properties

Property	Value
Owner	dbo

 db_datareader

Fuel Tax

Properties

Property	Value
Owner	dbo

Members

- apps_
- veapp

SQL Script

```
EXEC sp_addrolemember N'db_datareader', N'apps_'
GO
EXEC sp_addrolemember N'db_datareader', N'veapp'
GO
```

Uses

apps_

veapp

 db_datawriter

Fuel Tax

Properties

Property	Value
Owner	dbo

Members

- apps_
- veapp

SQL Script

```
EXEC sp_addrolemember N'db_datawriter', N'apps_'
GO
EXEC sp_addrolemember N'db_datawriter', N'veapp'
GO
```

Uses

apps_

veapp

 db_ddladmin

Fuel Tax

Properties

Property	Value
Owner	dbo

 db_denydatareader

Fuel Tax

Properties

Property	Value
Owner	dbo

 db_denydatawriter

Fuel Tax

Properties

Property	Value
Owner	dbo

 db_owner

Fuel Tax

Properties

Property	Value
Owner	dbo

 db_securityadmin

Fuel Tax

Properties

Property	Value
Owner	dbo

 public

Fuel Tax

Properties

Property	Value
Owner	dbo