INTRO SLIDE

* Founded in 2004 as an open source worldwide, seamless data set
* “Wikipedia of maps”
* Editable by anyone with an account, and if you don’t have one already then we can set one up today

WHY CHOOSE SLIDE

* Geographical data is not free in many parts of the world.
* Often times is takes a lot of money to collect data and therefore access it.
* In the USA crude data, like TIGER, is in the public domain, however refined data and finished maps are generally commercially copyrighted, like Google.

WHY WE CHOSE

EDITING INTERFACE

* slick and user friendly interface
* after sign up, zoom to a certain extent and you can start tracing imagery or gps uploads
* You can edit three types of features:
  + points (restaurants, shops, bars,etc),
  + lines (roads, rivers, railway lines)
  + areas (buildings, parks, landuse).
* Each feature is defined by tags (key value pairs)

DATA SLIDE

* Large database of XML data
* Nodes are points in space, basic building block of OSM
* Ways (collection of nodes) define linear features and area boundaries
* Relations are used to explain how other elements work together; relationships between elements
* Tags look something like “highway = primary” and/or “bridge = yes”

## Node Node

* A [node](http://wiki.openstreetmap.org/wiki/Node) represents a **specific point** on the earth's surface defined by its **latitude** and **longitude**.
* At a minimum, nodes contain at least an **id number** and a **pair** of coordinates.
* Nodes are often used to define **standalone point features**. For example, a node could represent a **park bench** or a **water well**.
* Nodes are also used to define the **shape of a** [**way**](http://wiki.openstreetmap.org/wiki/Way)**.**
* When used as points along ways, nodes usually have no tags, though some of them could.

## AreaWay Way Closed way

* A [*way*](http://wiki.openstreetmap.org/wiki/Way) is an ordered list of between 2 to 2,000 nodes that define a [polyline](http://en.wikipedia.org/wiki/Polygonal_chain).
* Open Ways: Ways are used to represent linear features such as rivers and roads. way
* Closed Way: Ways can also represent the boundaries of areas (solid [polygons](http://en.wikipedia.org/wiki/Polygon)) such as buildings or forests. In this case, the way's first and last node will be the same. area closed way
* closed ways occasionally represent loops, such as roundabouts on highways, rather than solid areas. The way's tags must be examined to discover which it is.
* Areas with holes, or with boundaries of more than 2,000 nodes, cannot be represented by a single way.
* Instead, the feature will require a more complex [multipolygon relation](http://wiki.openstreetmap.org/wiki/Relation:multipolygon) data structure.

## Relation Relation

* A [*relation*](http://wiki.openstreetmap.org/wiki/Relation) is a multi-purpose data structure that documents a relationship between two or more data [elements](http://wiki.openstreetmap.org/wiki/Element) (nodes, ways, and/or other relations).
* Examples include:
* A [route](http://wiki.openstreetmap.org/wiki/Route) relation, which lists the ways that form a major (numbered) highway, a cycle route, or a bus route.
* A [turn restriction](http://wiki.openstreetmap.org/wiki/Turn_restriction) that says you can't turn from one way into another way.
* A [multipolygon](http://wiki.openstreetmap.org/wiki/Multipolygon) that describes an area (whose boundary is the 'outer way') with holes (the 'inner ways').
* relations can have different meanings.
* The relation's meaning is defined by its tags.
* Typically, the relation will have a 'type' tag. The relation's other tags need to be interpreted in light of the type tag.

TAGS

* All types of data element (nodes, ways and relations) have tags.
* Tags describe the meaning of the particular element to which they are attached.
* A tag consists of two free format text fields; a 'key' and a 'value'.
* Each of these are Unicode strings of up to 255 characters.
* For example, [highway](http://wiki.openstreetmap.org/wiki/Key:highway)=[residential](http://wiki.openstreetmap.org/wiki/Tag:highway%3Dresidential) defines the way as a road whose main function is to give access to people's homes.
* There is no fixed dictionary of tags, but there are many conventions documented on this wiki (starting with the [Map Features](http://wiki.openstreetmap.org/wiki/Map_Features) page).
* If there is more than one way to tag a given feature, it's probably best to use the most common approach.
* You can add as many tags as you want-- as long as they have the proper key-value notation
* Most tags are already predefined in OSM, so you simply have to enter a keyword and the proper tag will appear-- this depends on how often it is used… sometimes you have to look up the tags in the wiki and figure out what makes the most sense
* Tagging is pretty flexible depending on what you are aiming to do with the data--- and this is one of the strongsuits of OSM… its flexibility
* Also, because it is an international map you will see some interesting tags, such as piste, motorway,

DEMO

* Create an account npmap@nps.gov
* Build a community— show profile
* Add a building (mall)
* Add a restaurant in the building
* export from OSM
* geofabrik, site

Local Knowledge: OpenStreetMap emphasizes local knowledge. Contributors use aerial imagery, GPS devices, and low-tech field maps to verify that OSM is accurate and up to date.

**QGIS**

* Data formatting, data manipulation, cartography
* Lot of people that develop extensions to QGIS…
* Here are the top plugins
* In a safe