

# Closing the Gaps

## Increasing Veterans' Access to VHA Primary Care

By Lauren K. Wilson, B.S., Eric R. Litt, B.A.,  
& Diane C. Cowper, Ph.D.



# Aims:

---

- ž Access to care for rural Veterans is a VA Priority
- ž To increase access to primary care for rural Veterans in underserved or “gap” areas
  - Areas outside of 30 minutes travel time to existing VHA Primary Care in this case
- ž Target community resources in “gap” areas for geographically plausible potential partnerships in Veterans Integrated Services Network (VISN 11)

# Aims Continued...

---

- \* *Geographically plausible*
  - Other factors go into decision-making process
    - **Availability**
    - **Acceptability**
    - **Accommodation**
    - **Affordability**
- ž This “gap” analysis gives us a *starting point* if one has not yet been determined
- Due to the way planning in the VA works, we often already have suggested areas in which to work our analyses – but not always...

# Methods

---

- ž Identified VHA Enrollees living beyond 30 minutes travel time to existing VHA Primary Care Facilities
- ž Performed a *Hot Spot Analysis* (Getis Ord  $G_i^*$  statistic)
  - Used *Closest Neighbor* and *Incremental-Spatial-Auto-correlation* tools to determine appropriate distances
- ž Within the “Hot Spot” area, *Location-Allocation* was run to determine potential best case scenarios using cities and community facilities as candidates

# Findings

---

- ž **3** Hot Spots identified in Veterans Integrated Services Network (VISN 11)
- ž Location-Allocation identified cities and existing community resources that could expand coverage if utilized
- ž *Network Analyst, Supplementary Spatial Statistics, and Spatial Statistics tools* are very useful in helping to solve an important problem to give our Veterans the **best care possible**.

# Impact

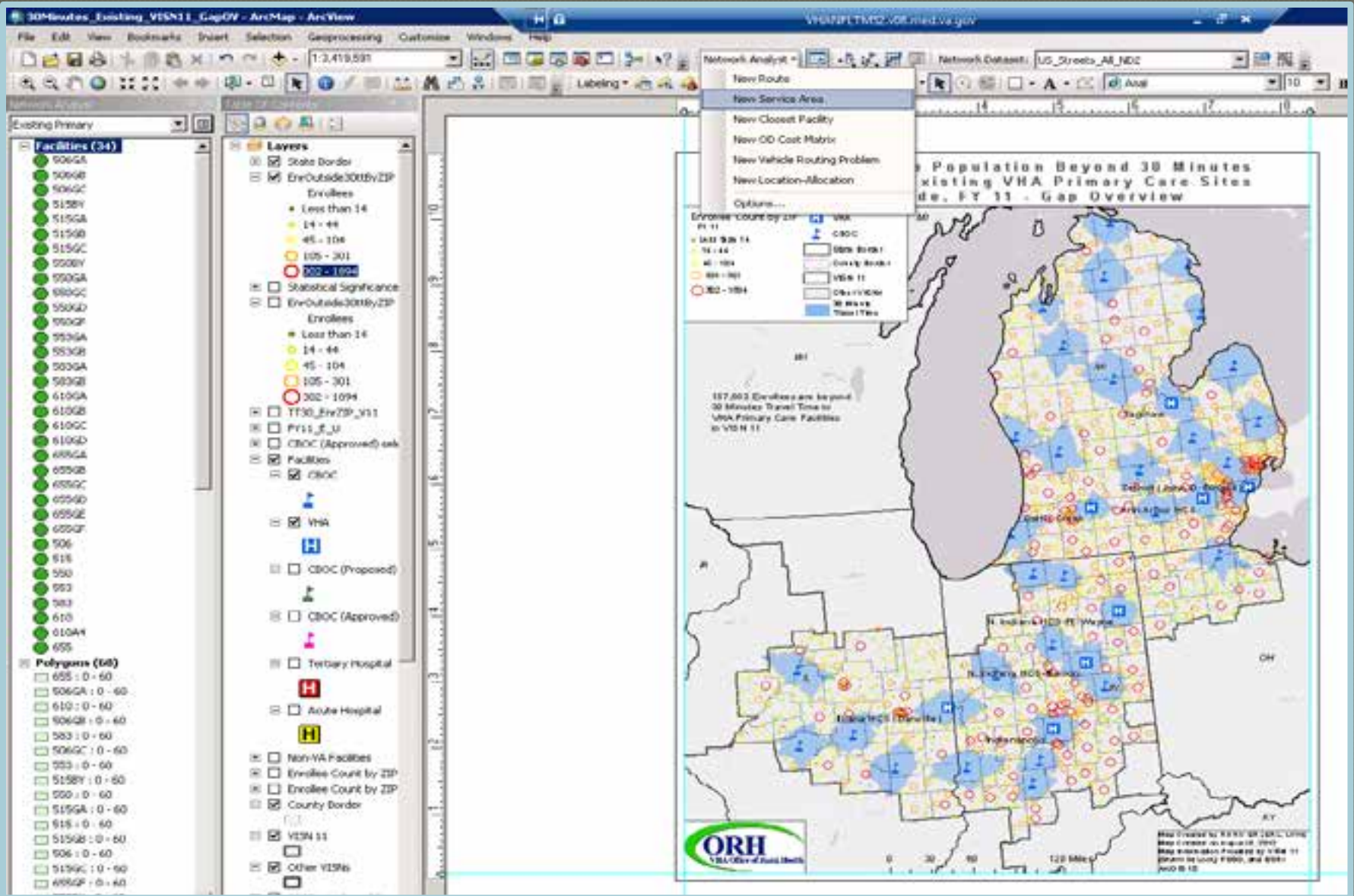
---

- z Conservatively speaking, *Tens of Thousands (if not Hundreds of Thousands)* of Veterans could be positively impacted
  - *Access to Primary Health Care* (and potentially Acute & Tertiary Health Care) services improved
  - *Strategically* target areas for Community Resource partnerships.

# Demonstration

FY 11 VISN 11 Geographic Access  
Report: 30 Minute Travel Time  
Using *Network Analyst*, *Hot Spot  
Analysis*, and *Location-Allocation*  
To Increase Market Share







- 105 - 301
- 302 - 1894
- T130\_EnrZIP\_Y
- FY11\_E\_U
- CBOC (Approv
- Facilities
- CBOC
- VHA
- CBOC (Prop
- CBOC (Appr
- Tertiary Hos
- Acute Hospi
- Non-VA Facilie
- Enrollee Count b
- Enrollee Count b
- County Border
- 
- VISN 11
- 
- Other VISNs
- 
- 30 Minute Travel Time

### Hot Spot Analysis (Getis-Ord Gi\*)

Input Feature Class: EnrOutside30MByZIP selection

Input Field: Enrollees

Output Feature Class: R:\Cowper project\Rural Health\FY\_11\VISN\_11\VISN11\_FY11GeoAccessRep.gdb\HotSpotForPresentz

Conceptualization of Spatial Relationships: FIXED\_DISTANCE\_BAND

Distance Method: EUCLIDEAN\_DISTANCE

Standardization: NONE

Distance Band or Threshold Distance (optional):

Self Potential Field (optional):

Weights Matrix File (optional):

OK Cancel Environments... << Hide Help Tool Help

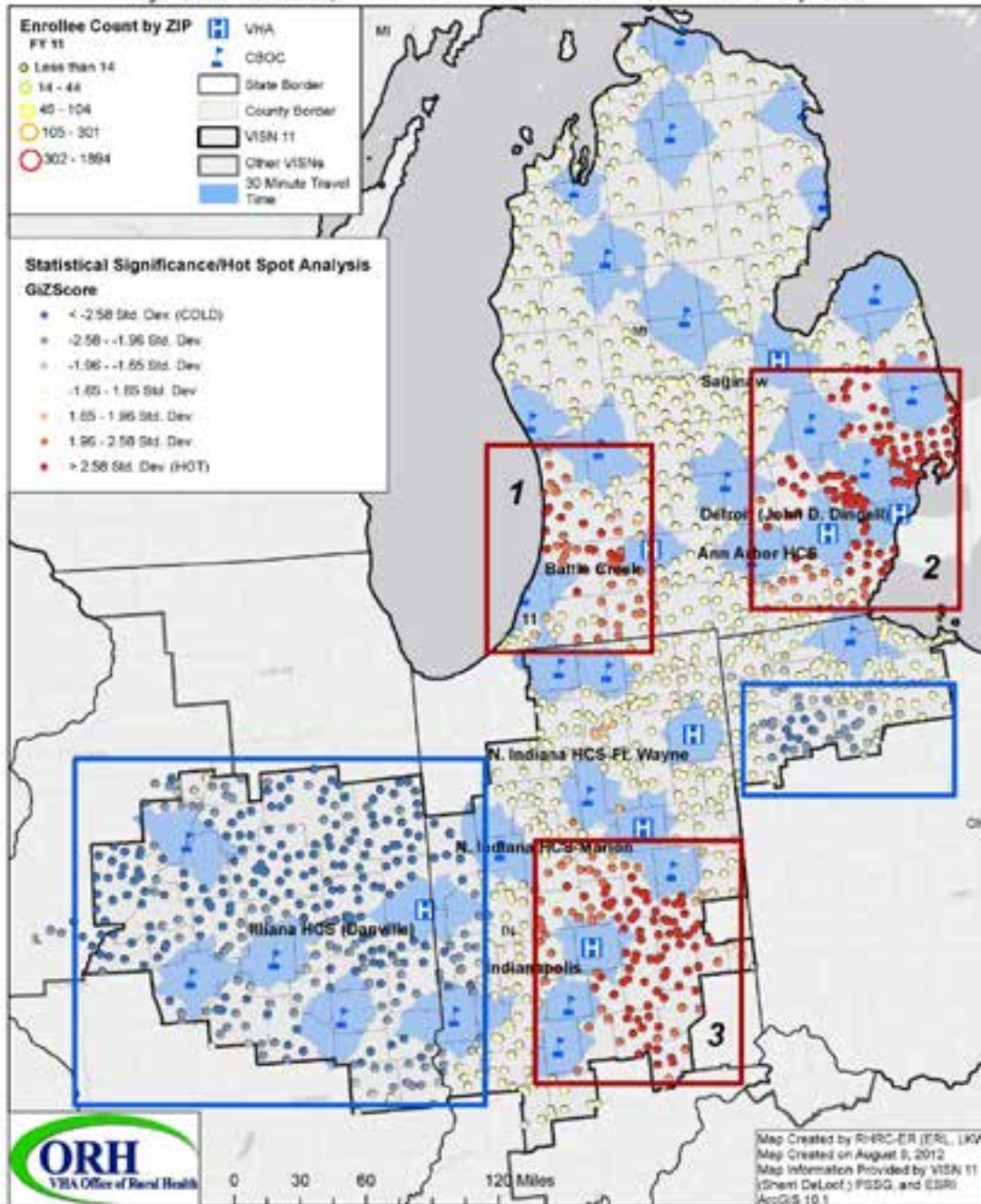
### Output Feature Class

The output feature class to receive the z-score and p-value results.




© 2007-2010 LIBRA, LAM  
 15 AUGUST 2012  
 11:00:00 AM  
 11:00:00 AM

# VISN 11 Enrollee Population Within 30 Minutes Travel Time of Existing VHA Primary Care Sites by ZIP Code, FY 11 - Location of "Hot Spots"



## Load Locations

Load From:  Enrollees in Hot Spot 1

Only show point layers

Only load selected rows

Sort Field:

### Location Analysis Properties

Property	Field	Default Value
Name		
FacilityType		Candidate
Weight		Candidate
CurbApproach		Required
		Competitor
		Chosen

### Location Position

Use Geometry

Search Tolerance:

25

Miles

Use Network Location Fields

Property	Field
SourceID	
SourceOID	
PosAlong	
SideOfEdge	

Advanced...

OK

Cancel



- 49093
- 49030
- 49036
- 49021
- 49073
- 49058
- 49055
- 49062
- 49071
- 49011
- 49087
- 49029
- 49097
- 49004
- 49035
- 49046
- 49051
- 49052
- 49060
- 49088
- 49009
- 49006
- 49077
- 49019
- 49008
- 49005
- 49007
- 49002
- 49081
- 49024
- 49033
- 46776
- 46746
- 49042
- 49099
- 49091
- 49130
- 49095
- 49061

**Layers**

- Enrolees in Home by ZIP Code
  - Less than 14
  - 14 - 44
  - 45 - 104
  - 105 - 301
  - 302 - 1213
- LocAllocFacilities
  - VHA
  - CBCC
- Location-Allocation
  - Facilities
    - Error
    - Candidate
    - Chosen
    - Require Compete
    - Unlocated
    - Unlocated
    - Unlocated
    - Unlocated
  - Demand Point
    - Error
    - Located
    - Unlocated
  - Point Barrier
    - Error
    - Restrict
    - Added Candidate
  - Lines

**Layer Properties**

General | Layers | Source | Analysis Settings | Advanced Settings | Accumulation | Network Locations

**Advanced Settings**

Problem Type: Maximize Coverage

Facilities To Choose: 3

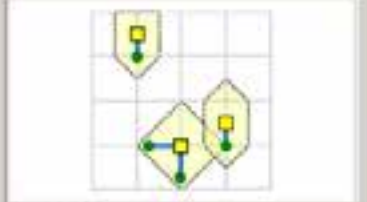
Impedance Cutoff: 30

Impedance Transformation: Linear

Impedance Parameter: 1

Target Market Share (%): 10

**Problem Type Description**



**Maximize Coverage**

This option solves the fire station location problem. It chooses facilities such that all or the greatest amount of demand is within a specified impedance cutoff.

OK Cancel Apply



# 30 Minute Location-Allocation of Hot Spot 1 Top 3 Candidate Cities VISN 11



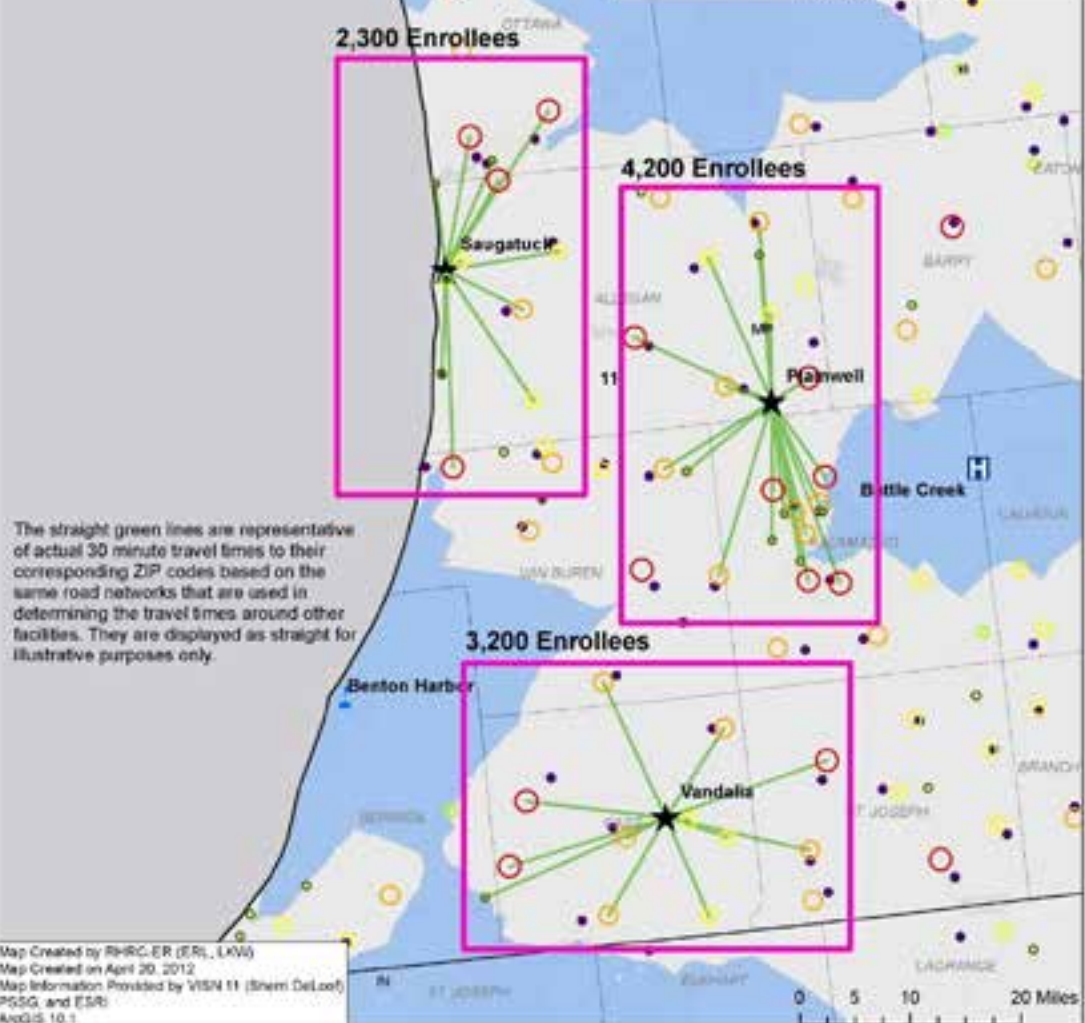
**Enrollees in Hot Spot 1 by ZIP Code**

- Less than 14
- 14 - 44
- 45 - 104
- 105 - 301
- 302 - 1213

**Legend:**

- Existing VHA
- Existing CBOC
- Candidate City
- Recommended City\*
- State Border
- County Border
- 30 Minute Travel Time

\*Based on the Location-Allocation Network Analyst Tool



The straight green lines are representative of actual 30 minute travel times to their corresponding ZIP codes based on the same road networks that are used in determining the travel times around other facilities. They are displayed as straight for illustrative purposes only.

Map Created by RHRC-ER (ERL, LKW)  
Map Created on April 20, 2012  
Map Information Provided by VISN 11 (Sherril DeLoof)  
PSSG and ESR  
ArcGIS 10.1

# 30 Minute Location-Allocation of Hot Spot 1 Top 3 Candidate Non-VA Facilities VISN 11



**Enrollees in Hot Spot 1 by ZIP Code**

- Less than 14
- 14 - 44
- 45 - 104
- 105 - 301
- 302 - 1213

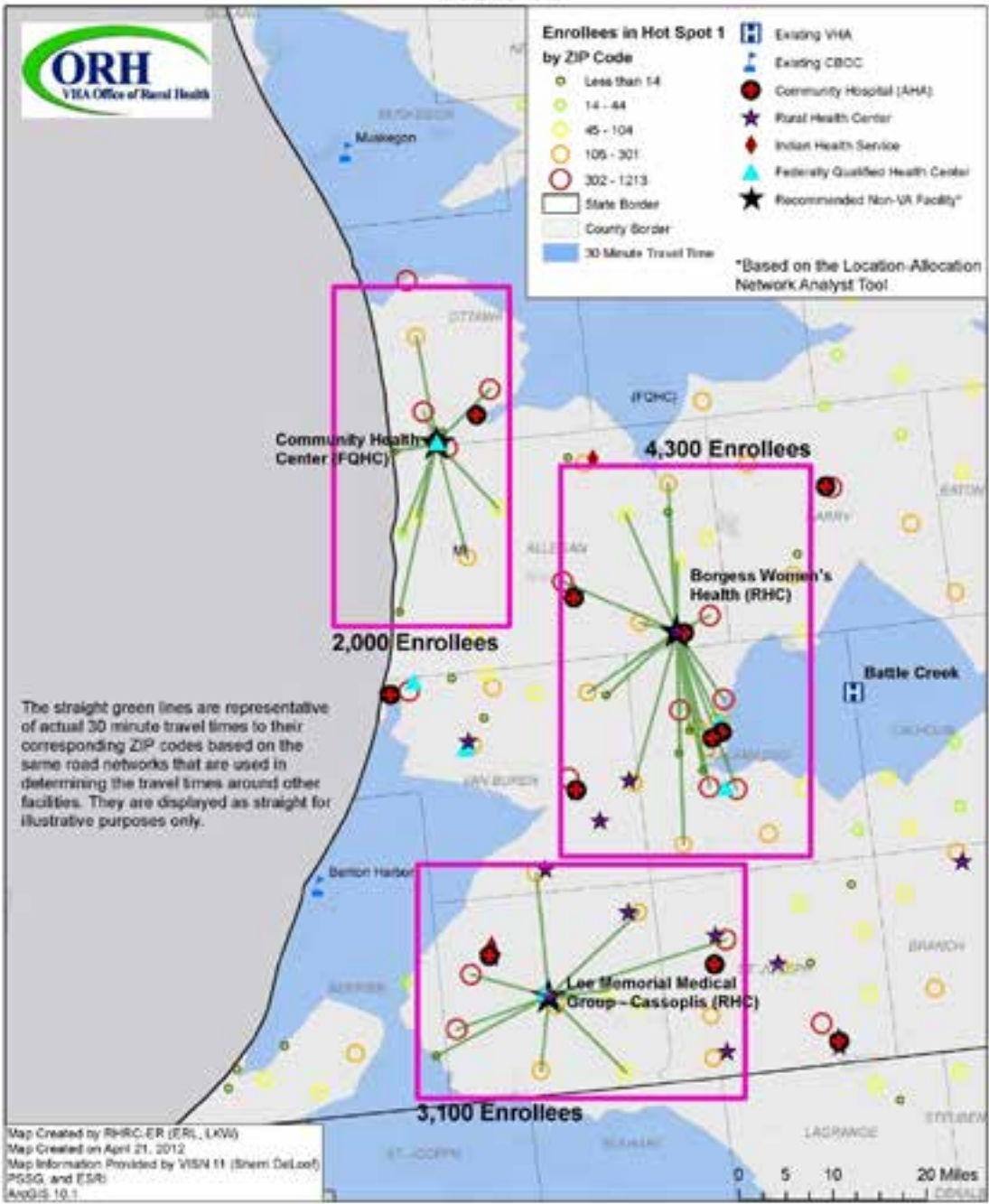
**Facility Types:**

- Existing VHA
- Existing CBDC
- Community Hospital (AHA)
- ★ Rural Health Center
- ◆ Indian Health Service
- ▲ Federally Qualified Health Center
- ★ Recommended Non-VA Facility\*

**Map Features:**

- State Border
- County Border
- 30 Minute Travel Time

\*Based on the Location-Allocation Network Analyst Tool



The straight green lines are representative of actual 30 minute travel times to their corresponding ZIP codes based on the same road networks that are used in determining the travel times around other facilities. They are displayed as straight for illustrative purposes only.



# Questions?

Lauren.Wilson1@va.gov

Eric.Litt@va.gov

Diane.Cowper2@va.gov

