

Messaging & Implementation Subcommittee

June 29th, 2023



Lessons Learned
recognise mistakes
observe what works
document them
share them





4TH
OF JULY

Competition

ttpoll.com

Session ID: emulsion

Hello!

Session ID

Join Session

Enter Session Details

First Name

Larry

Last Name

Tomkins

User ID

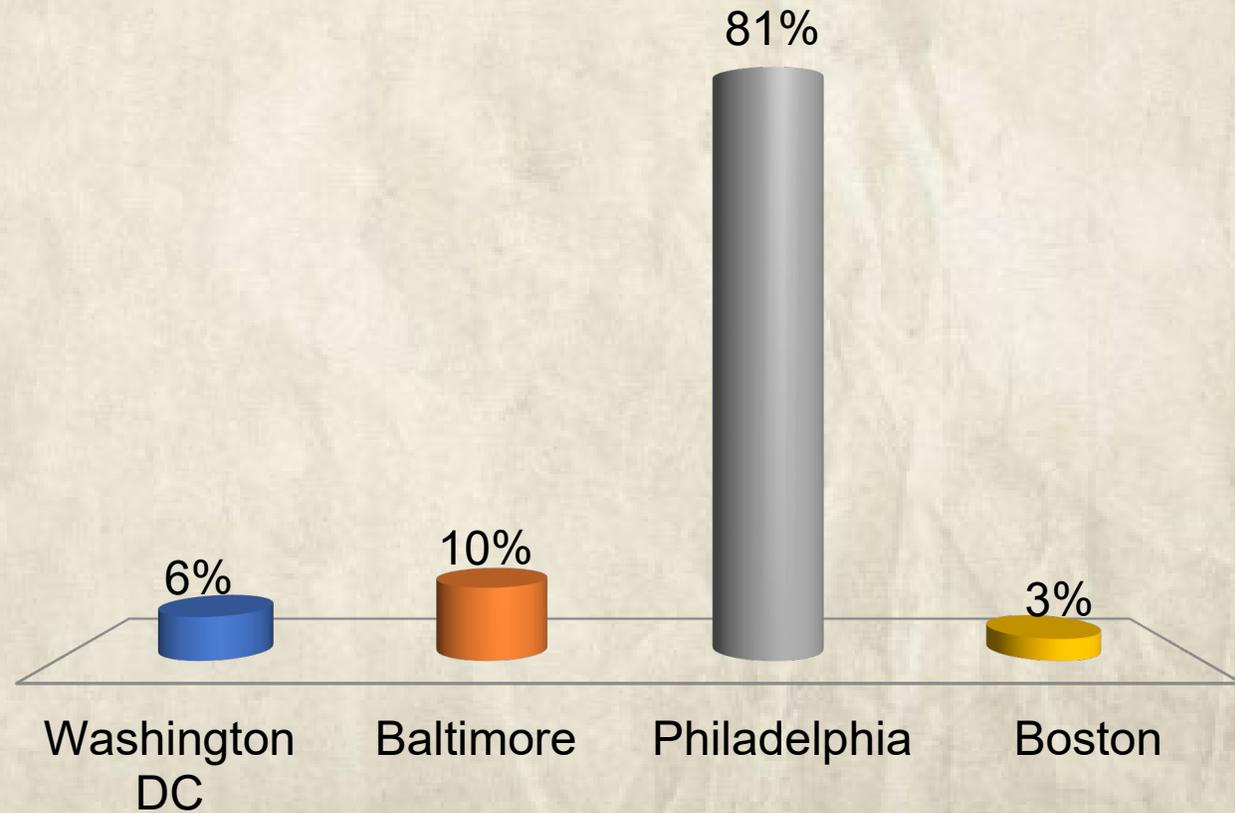
Email

Cancel

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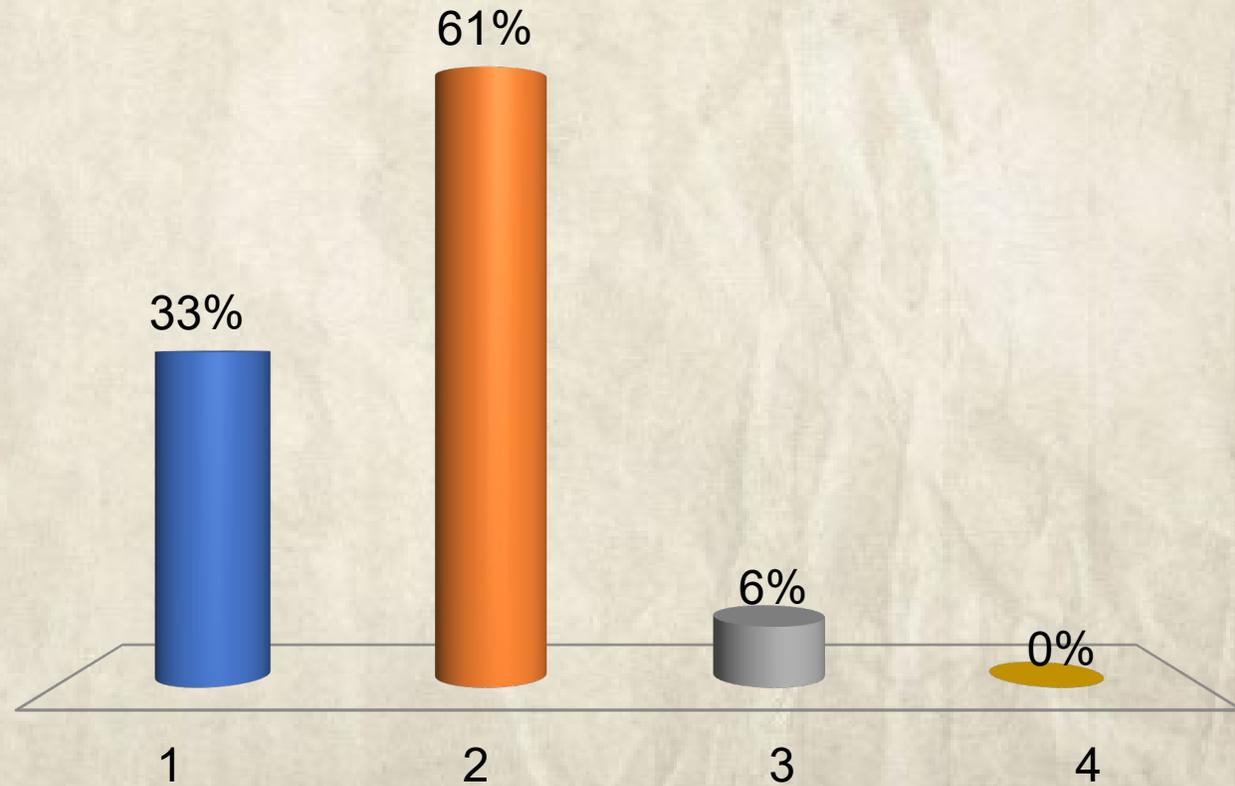
In which US city was the first 4th of July celebration held?

- A. Washington DC
- B. Baltimore
- ✓ C. Philadelphia
- D. Boston



How many US Presidents have died on the 4th of July?

- A. 1
- B. 2
- ✓ C. 3
- D. 4



Participant Leaders

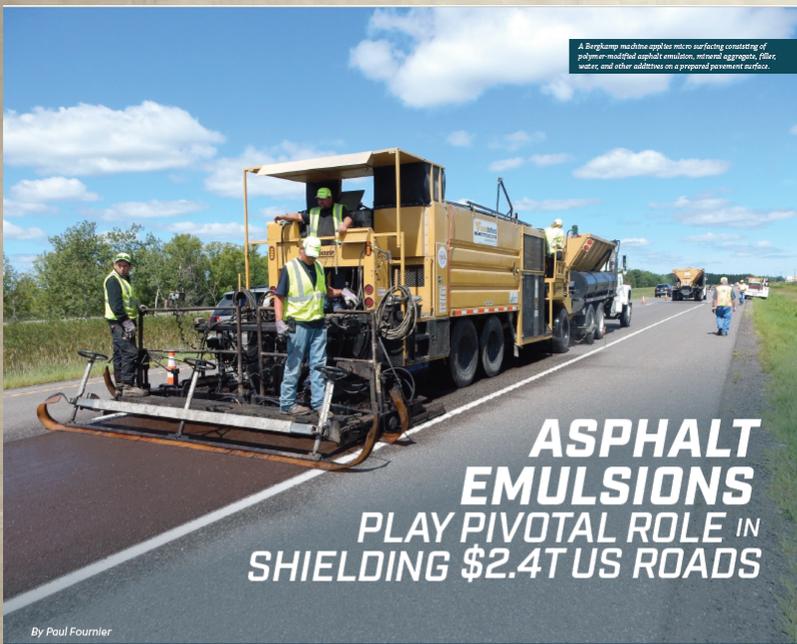
Points	Participant	Points	Participant
1196.11	Brewster, Stormy	840.07	Knudtson, Danielle
945.31	Escobar' pool boy, Pablo	828.42	Milan, Russ
933.64	Badger, WPS	816.59	A, Nathan
921.92	C, Shelly	816.58	Walbeck, Travis
910.36	Houston, Sallie	804.79	McGlumphy, Kevin
898.14	Teto, Matt	804.79	Weigel, Marla
886.36	Vargas, Adriana	804.21	Shields, Todd
883.76	S, S	792.62	M, Ronald
874.58	Thomas, Todd	780.72	Roy, Aaron
840.07	Morse, Kelly	769.17	Haz, D

NCHRP 20-44(26)

Steps to achieve the GOAL.

- 1. Messaging**
- 2. Outreach**
- 3. Training**
- 4. Demonstrations**

Messaging



A Berghamp machine applies micro surfacing consisting of polymer-modified asphalt emulsion, mineral aggregate, filler, water and other additives on a prepared pavement surface.

ASPHALT EMULSIONS PLAY PIVOTAL ROLE IN SHIELDING \$2.4T US ROADS

By Paul Fournier

A little known volunteer group of highway technology professionals are quietly transforming the language and mechanics related to asphalt emulsions, and in the process revolutionizing the way that billions of dollars will be spent preserving the nation's roadways.

The diverse collection of academics, engineers, contractors, producers and agency officials is known officially as AASHTO Pavement Preservation Emulsion Task Force (ETF for short). ETF has been working for the past five years to create a set of national standards, predicated on performance, for emulsion-based pavement preservation treatments. As part of this effort, ETF is advancing changes in asphalt emulsion technology and encouraging state Departments of Transportation and local agencies to incorporate these new developments into their pavement preservation programs.

Protecting \$2.4 Trillion Investment

Emulsion-based surface treatments are employed for roadway preventive maintenance and are considered by the Federal Highway Administration (FHWA) as a major component of pavement preservation. Some agencies use the terms pavement preservation and preventive maintenance interchangeably for these treatments, which include chip-sealing, slurry seals, micro surfacing and fog seals, among

others. The emulsion-based treatments are generally inexpensive when compared to traditional treatments using hot mix asphalt.

The FHWA notes that out of an estimated 4.1 million miles of public roads in the U.S., about 2.8 million are paved – most with asphalt. About 1 million miles of these are owned and operated by the states, and 1.8 million miles are owned by local governments. Of the paved state roads, more than 90 percent are asphalt with the remainder divided between concrete pavement and composite pavement. All told, the nation's roads are estimated to be worth more than \$2.4 trillion, according to The Asphalt Pavement Alliance (APA), a coalition of the Asphalt Institute, the National Asphalt Pavement Association, and the State Asphalt Pavement Associations.

Preserving this immense roadway investment requires enormous financial expenditures. In 2014, a total of \$1.65 billion was spent for national, state and local roads, bridges and tunnels, according to BidNet, a market research company based in New York. As the elements take their toll on roadways and new highways are developed in states across the country, there will be a continual need for construction services to maintain new and existing infrastructure.

And the company predicts that the federal government has strong incentives to spend billions of dollars on highway infrastructure.

Preservation Origins

At one time FHWA allowed little or no federal funds to be spent by the states on road maintenance, but that began to change in the early 2000s thanks in part to the work of the late Jim Sorenson, considered a pioneer in the development of pavement preservation systems. A senior construction and preservation engineer for FHWA's Office of Asset Management, Sorenson spent much of his time as a strong advocate of pavement preservation, explaining these principles to various segments of the transportation construction industry. He partnered with state DOTs and worked closely with organizations that promoted the concepts of pavement preservation. Sorenson believed that the benefit-to-cost ratio for pavement preservation far exceeds that of reconstructing a road that has been allowed to deteriorate too long and he estimated that for every \$1 invested in preservation, there is a \$6 return in extended service life.

Today, FHWA points out that an effective pavement preservation program addresses pavements while they are still in good condition, before the onset of serious damage. By applying a cost-effective treatment at the right time, the agency believes pavement is restored almost to its original condition. The cumulative effect of aging, weather and abrasion is postponed, and

the pavement can continue to provide a safe, smooth and cost-effective service to the taxpayer. This proactive and systematic preservation treatment postpones costly rehabilitation and reconstruction. For funding considerations, FHWA regards pavement preservation as having three components: preventive maintenance, minor rehabilitation (non-structural), and some routine maintenance activities.

The Emulsion Advantage

While asphalt emulsions are the key ingredient of most pavement preservation treatments, they are relatively simple products created by combining asphalt, water, and a small amount of an emulsifying agent in a colloid mill that shears the asphalt into tiny droplets. The emulsifier, usually a surface-active agent such as ordinary soap, keeps the asphalt droplets in a stable brown suspension with a thin consistency, which can be used in cold processes for road construction and maintenance. Once the emulsion is applied in the field, the asphalt begins to stick to the surrounding aggregate or other surface, and the emulsion "breaks," with its color changing from brown to black. As the water begins to evaporate, the emulsion begins to behave like pure asphalt binder, and is described as being set.



Outreach



MPPP



NEPPP



SEPPP



RMWPPP



North Central Asphalt User/Producer Group



Training

517-432-8220 | ncpp@egr.msu.edu

TSP2 Emulsion Task Force

Search...

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Meetings & Presentations

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NCHRP 20-44(26)

Training

Mem

Training

[Fog Seal Training - Power Point - with voice](#)

[Chip Seal Training - Power Point - no voice](#)

[Chip Seal Training - Power Point - with voice](#)

[Micro Surfacing Training - Power Point - with voice](#)



Training



Best Practice Flyers

- Provide 1-page handouts with highlights of each guide: micro surfacing, chip seal, and fog seal.
- Discuss materials, design, and construction specs for micro surfacing, chip seal, and fog seal.

<http://tsp2-etf.org/specs-checklists/specifications/>

The screenshot shows a web browser window with the URL tsp2-etf.org/specs-checklists/specifications/. The page title is "Specifications". Under the heading "Draft Construction Guide Specifications", there is a list of four items: "Construction Guide for 406 Emulsified Chip Seal [2020-09-02] (V-2)", "Construction Guide for 407 Hot Applied Chip Seal [2020-09-04] (V-3)", "Construction Guide for 408 Micro Surfacing [2020-09-02] (V-6)", and "Construction Guide for 410 Emulsified Asphalt Fog Seal [2020-09-04] (V-2)". Below this is the section "Construction Guide Highlights", which is circled in red. It contains three items: "Chip Seal Construction Guide Highlights (V1.1)", "Fog Seal Construction Guide Highlights (V1.1)", and "Micro Surfacing Construction Guide Highlights (V1.1)". At the bottom, under "Draft Design Specifications", there is a list of ten items including "Design for Chip Seals [2016-05-17] (V-1 Final)", "Design for FDR [2018-07-25]", "Design for Fog Seal [2016-11-04] (V-1 Final)", "Design for Micro Surfacing [2016-07-11] (V-1 Final)", "Design for Sand Seal [2017-11-14] (V-1 Final)", "Design for Sand Seal [2017-12-19] (V-2 Final)", "Design for Scrub Seal [2017-06-02] (V-1 Final)", "Design for Slurry Seal [2016-11-13] (V-1 Final)", "Design for Tack Coats [2016-11-04] (V-1 Final)", and "Design for UTBWC [2019-06-04] (V-4.0 Final)".

Training

Detailed power point presentations that illustrate:

- Important elements
- Key points for “no fly zones”
- Consequences of non-inclusion
- Major “keys for success”



Knowledge checks will recap each section

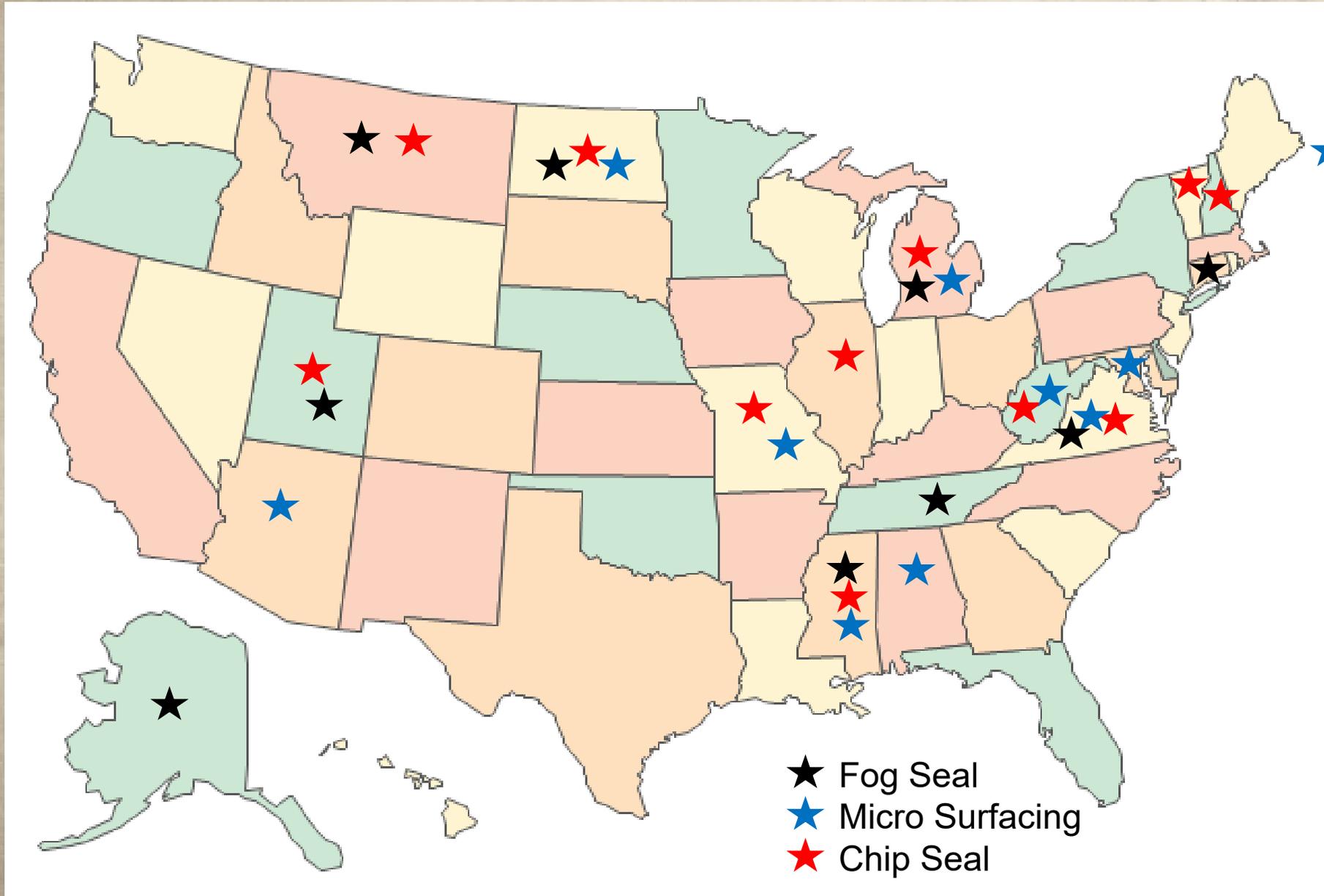
Presentations will be kept to less than one hour

NCHRP 20-44(26)

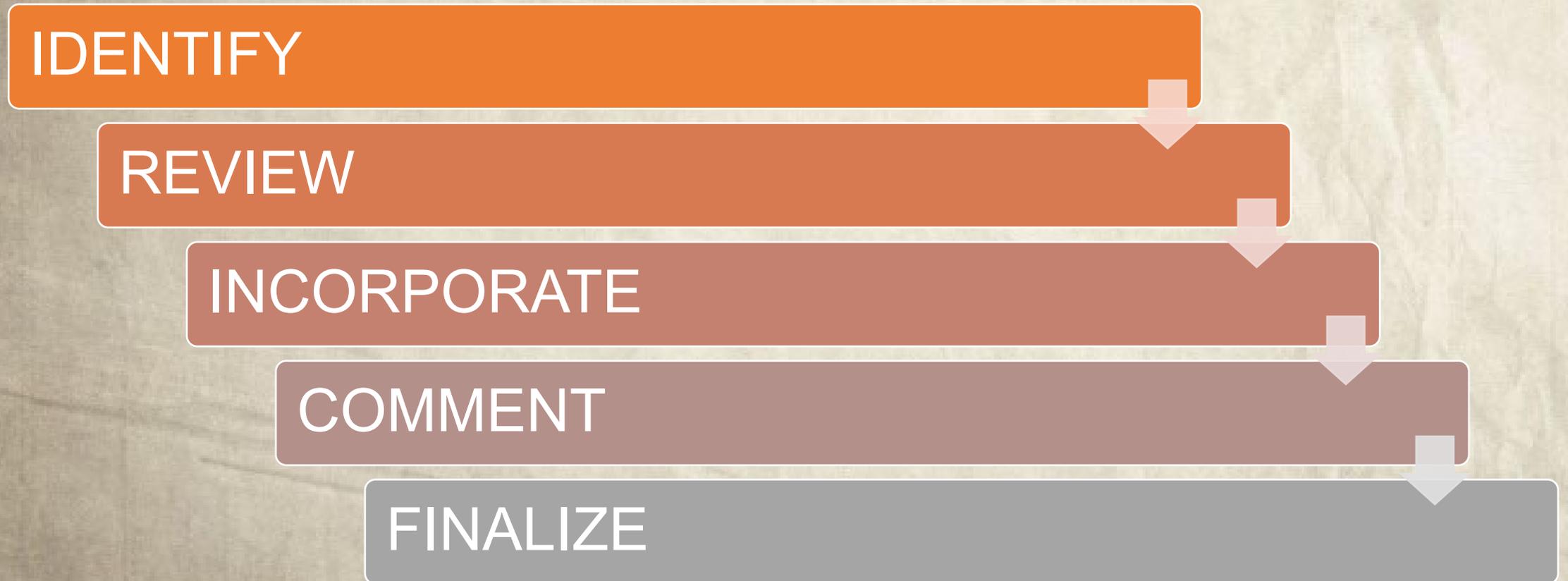
Steps to achieve the GOAL.

- 1. Information Dissemination**
- 2. Outreach**
- 3. Training**
- 4. Demonstrations**

Demonstration Project Locations



Demonstration Project Process



Identify-Review-Incorporate-Comment-Finalize

Lessons Learned:

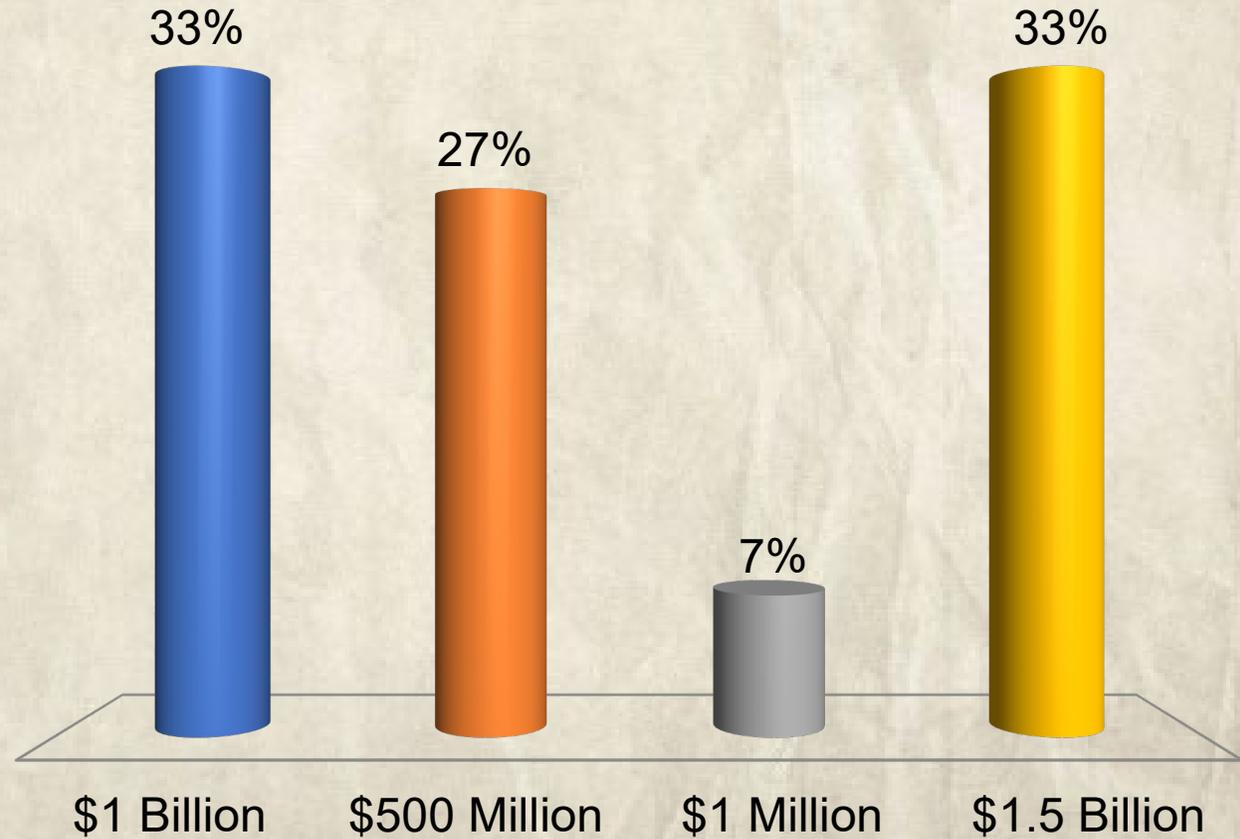
- The outreach was crucial
- Numbers game
- Finding liaisons and educating them on mission
- Reviews sessions were so important/rewarding
- Training – online or in-person
- Agencies fell into 3 categories
- The amount of time to finalize
- Different ways to get project to construction





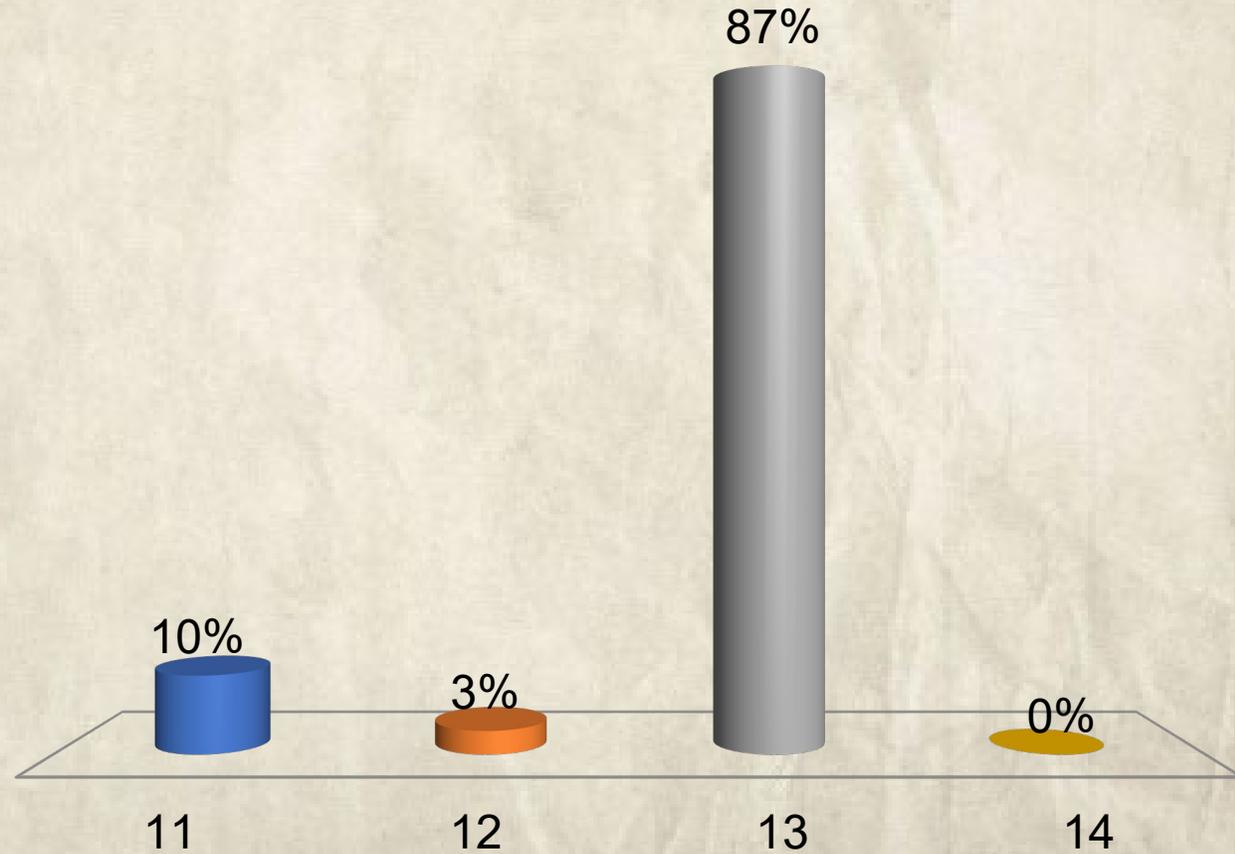
What is the annual amount Americans spend on fireworks?

- ✓ A. \$1 Billion
- B. \$500 Million
- C. \$1 Million
- D. \$1.5 Billion



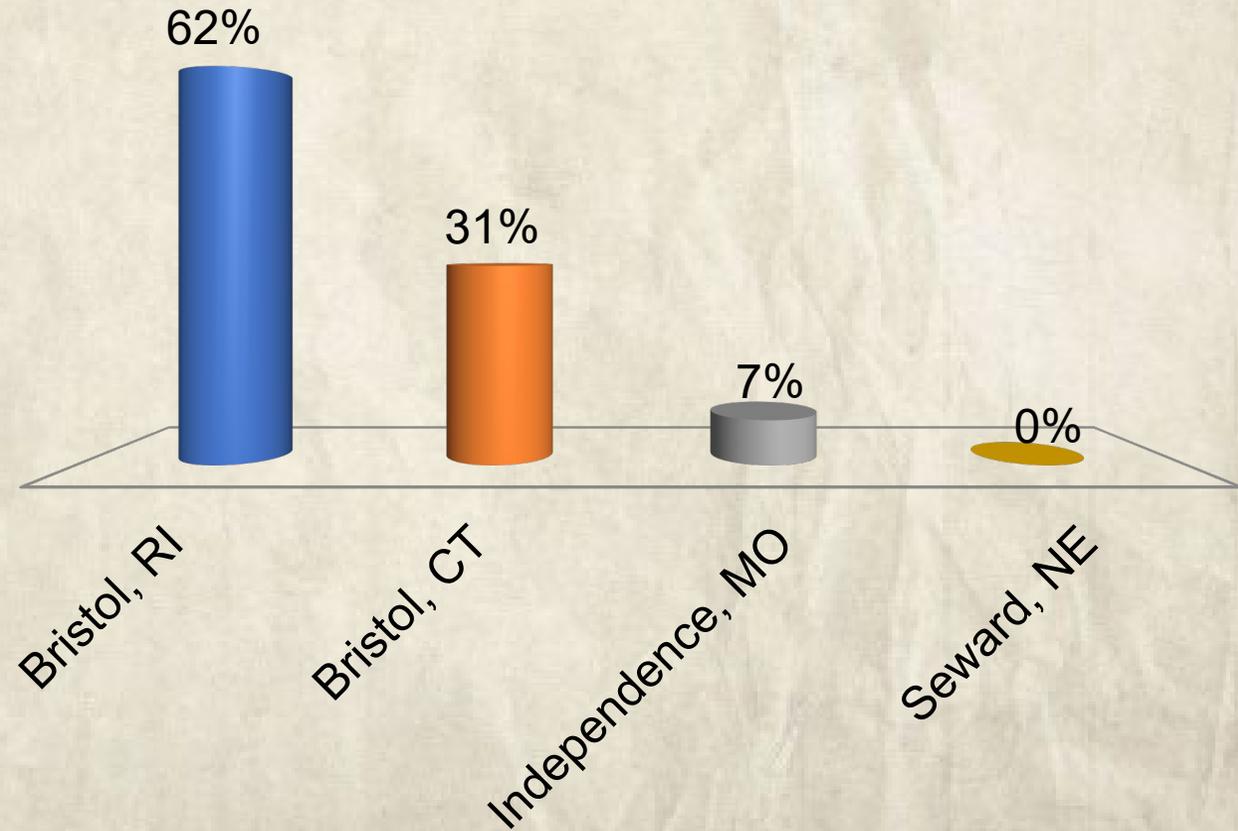
How many stars did the original US flag have?

- A. 11
- B. 12
- ✓ C. 13
- D. 14



Where in the US is the oldest 4th of July parade?

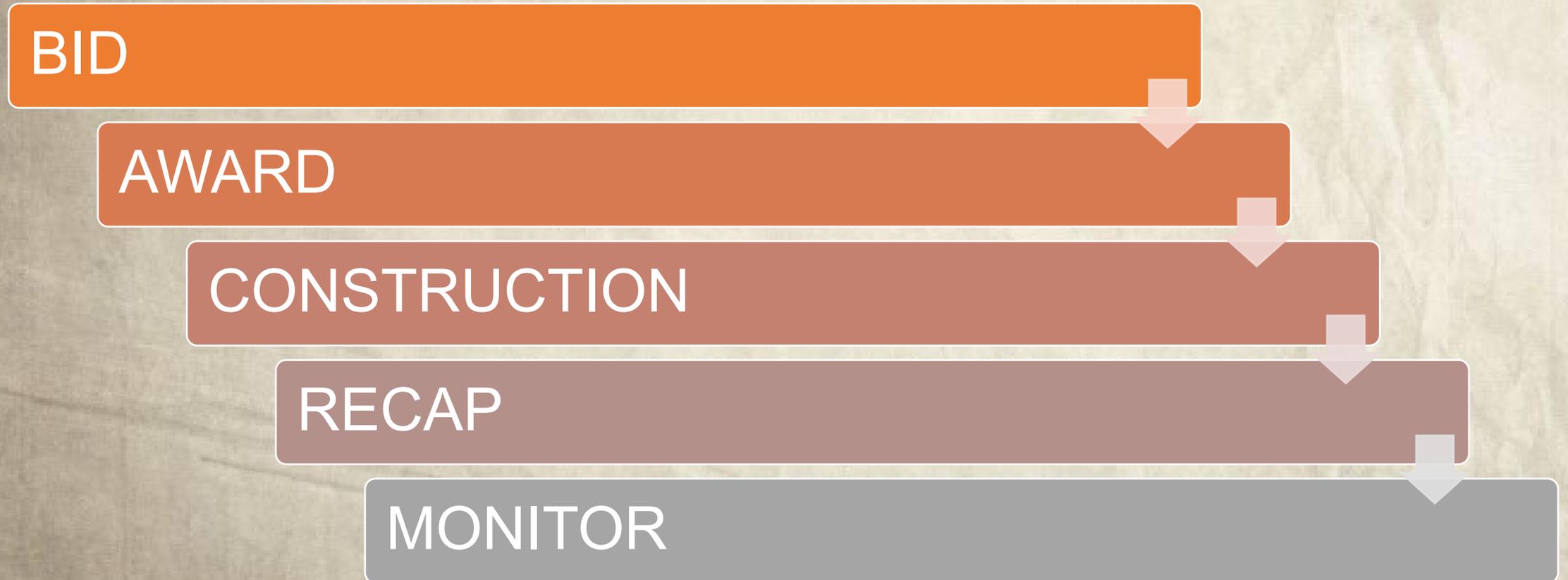
- ✓ A. Bristol, RI
- B. Bristol, CT
- C. Independence, MO
- D. Seward, NE



Participant Leaders

Points	Participant	Points	Participant
3570.26	Badger, WPS	2172.64	Weigel, Marla
3413.79	Knudtson, Danielle	2065.01	Man, Patriot
3362.41	Vargas, Adriana	1870.65	Burgundy, Ron
3196.26	Geib, Jerry	1839.83	Teto, Matt
2989.17	Brewster, Stormy	1808.6	Poppa, Big
2696.04	C, Shelly	1802.04	Walbeck, Travis
2666.96	Loeffler, Steven	1792.13	S, S
2422.27	Milan, Russ	1737.59	Houston, Sallie
2374.6	Roy, Aaron	1733.9	Durante, Colin
2351.45	Shields, Todd	1631.56	Morse, Kelly

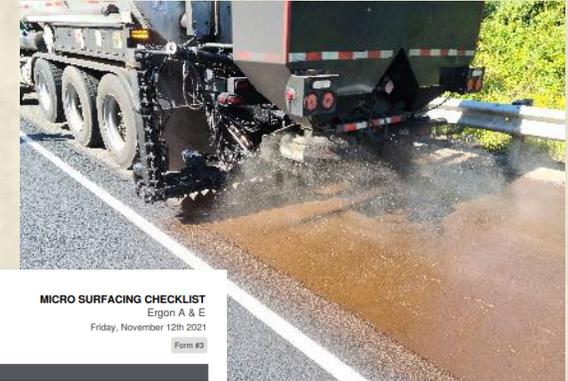
Demonstration Project Process



Bid-Award-Construction-Recap-Monitor

Lessons Learned:

- Need pre-pavement condition data or pics
- Follow up on startup
- Review checklist of info to get
- Who is going to be out there?
- Coordination of onsite visits for other agencies
- Right type of pictures
- Feedback from agency
- Post-pavement condition data or pics
- Who is going to follow up?
- Project profile one pagers



Ergon Asphalt & Emulsions, Inc. **MICRO SURFACING CHECKLIST**
Ergon A & E
Friday, November 12th 2021
Form #3

PRE-CONSTRUCTION	
What was the MAP 21 rutting condition rating (pre-construction)? <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	What was the MAP 21 cracking condition (pre-construction)? <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor
What was the MAP 21 IRI condition rating (pre-construction)? <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor	Nomenclature of Micro Surfacing Emulsion? CQS-1HP
Aggregate Type? <input type="checkbox"/> Type I <input type="checkbox"/> Type II <input type="checkbox"/> Type III	Type of Mineral Filler? Portland Cement
Mix Design Submitted? <input type="checkbox"/> Yes <input type="checkbox"/> No	
EQUIPMENT	
Mixing Equipment Type? <input type="checkbox"/> Continuous Unit <input type="checkbox"/> Truck Mounted Unit	Mixing Equipment Manufacturer and Model?
Number of Support Trucks? <input type="checkbox"/> 1 - 3 <input type="checkbox"/> 4+	Does Spreader Box have augers? <input type="checkbox"/> Yes <input type="checkbox"/> No
Secondary Strike-Off Type Rubber	Roller Needed? <input type="checkbox"/> Yes <input type="checkbox"/> No
Rut Box? <input type="checkbox"/> Yes <input type="checkbox"/> No	Was Mixing Equipment (Paver) Calibrated? <input type="checkbox"/> Yes <input type="checkbox"/> No
Pre-Construction Meeting? <input type="checkbox"/> Yes <input type="checkbox"/> No	
ROAD PREP	
Road Prep - Clean Pavement? <input type="checkbox"/> Yes <input type="checkbox"/> No	Road Prep - Protection of Utilities? <input type="checkbox"/> Yes <input type="checkbox"/> No
Road Prep - Removal of Striping? <input type="checkbox"/> Yes <input type="checkbox"/> No	Tack Coat Needed? <input type="checkbox"/> Yes <input type="checkbox"/> No
Any Pre-Treatment of the Surface Prior to Micro Surfacing Placement? Crack Seal	



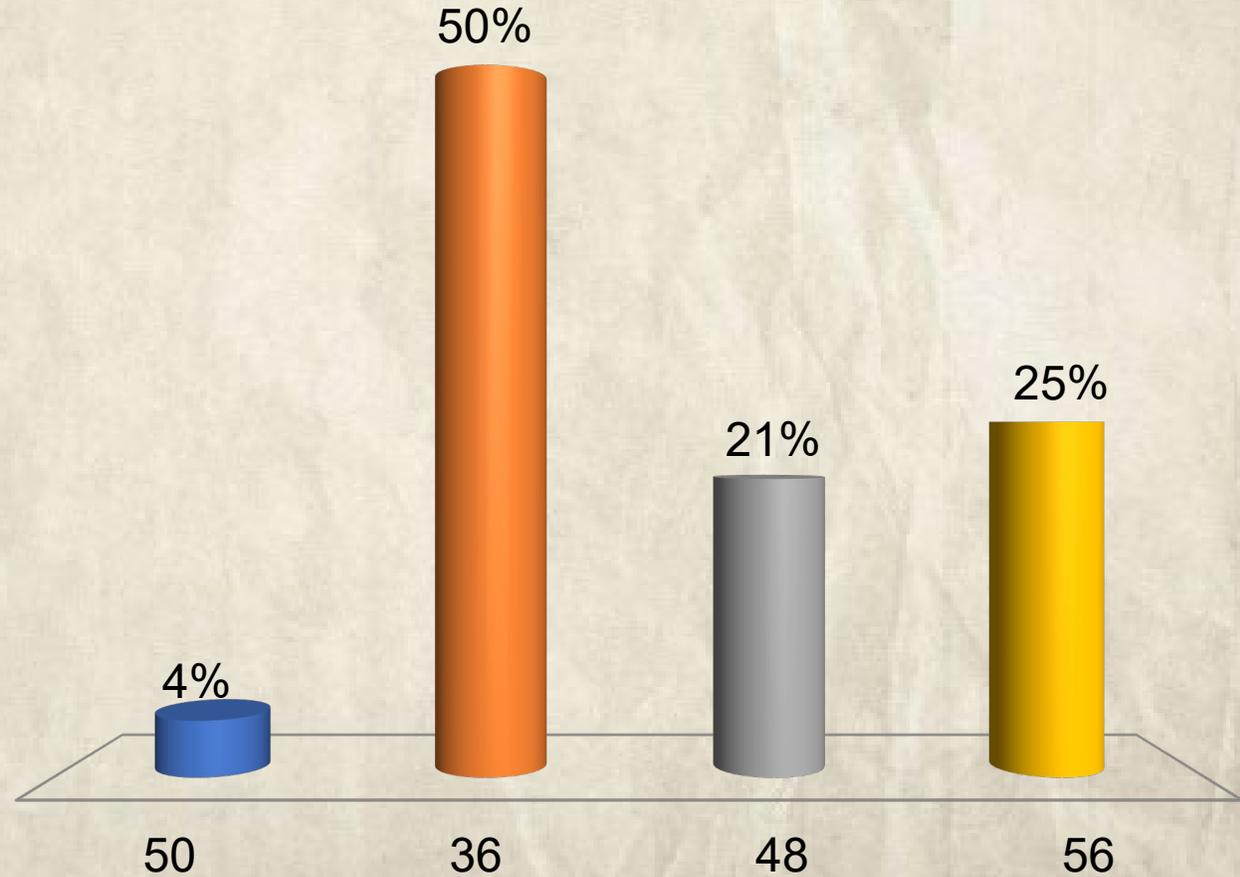
How many people signed the Declaration of Independence?

A. 50

B. 36

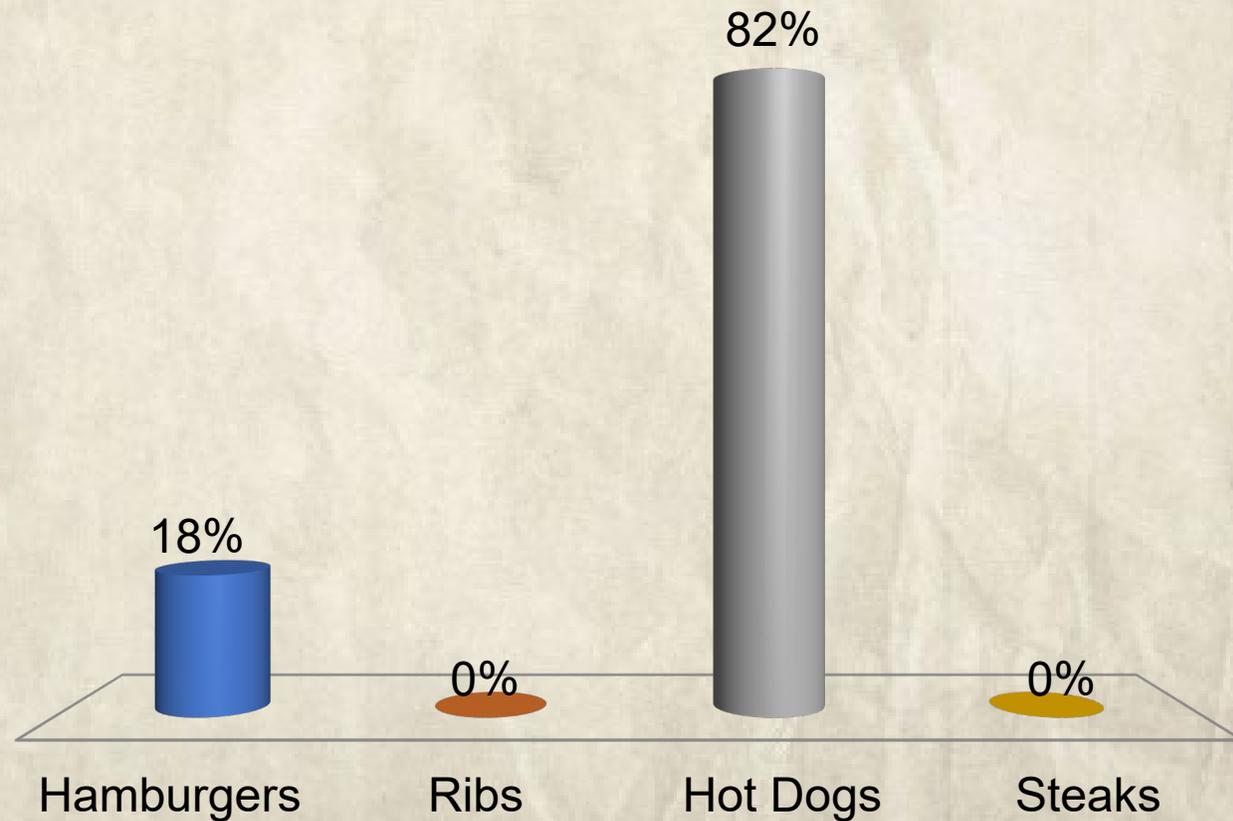
C. 48

✓ D. 56



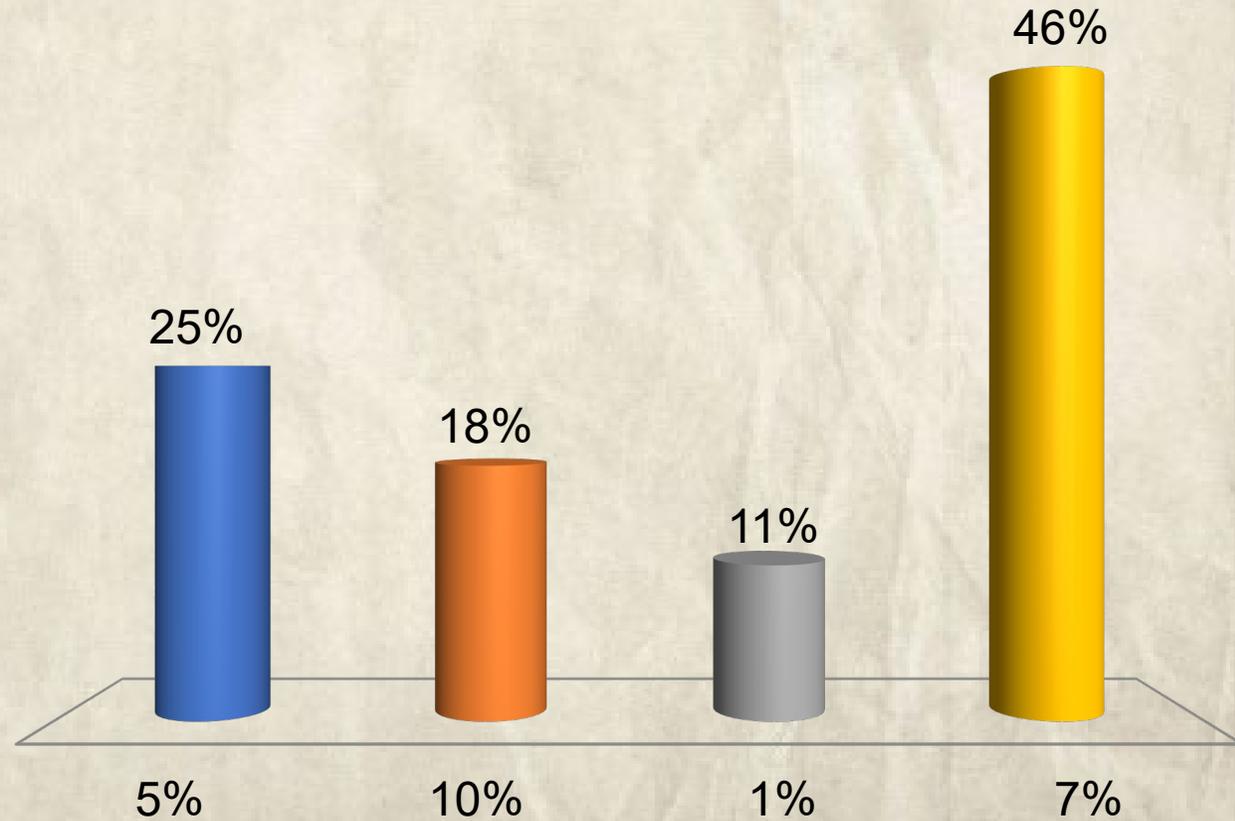
What is the most common food eaten on the 4th of July?

- A. Hamburgers
- B. Ribs
- ✓ C. Hot Dogs
- D. Steaks



4th of July accounts for what percentage of national beer consumption?

- ✓ A. 5%
- B. 10%
- C. 1%
- D. 7%



Participant Leaders

Points	Participant	Points	Participant
5332.91	Badger, WPS	3276.41	L, Ryan
5250.65	Knudtson, Danielle	3262.92	Morse, Kelly
4814.93	Brewster, Stormy	3210.78	Roy, Aaron
4654.35	Geib, Jerry	2865.55	Poppa, Big
4429.94	Loeffler, Steven	2717.08	Teto, Matt
4278.19	Weigel, Marla	2711.55	S, S
4239.64	Vargas, Adriana	2594.32	Houston, Sallie
4158.77	C, Shelly	2549.42	Durante, Colin
3638.91	Walbeck, Travis	2422.27	Milan, Russ
3555.48	Man, Patriot	2410.5	Jayhawk, Rock Chalk

Overall Thoughts

Lessons Learned:

- Time consuming
- Flexibility of the committee and liaisons
- Location of liaisons vs. agencies
- Improvement of specs to many states
- Established credibility with the AASHTO specifications
- Learning experience
- Developed and/or strengthened relationships
- A lot of good came out of it

NCHRP 20-44(26) Demo Project Mississippi DOT Microsurfacing

Project Overview

This Mississippi Department of Transportation (MDOT) project involved the application of a micro surfacing treatment on 17.5 miles on MS State Route 18 in Clarke County, Mississippi. The pavement is 2 lanes in each direction with a maximum ADT of 550 vehicles per day. The previous surface was a chip seal and was in good condition making this an excellent candidate for micro surfacing.



The specification for the micro surfacing project was developed by modifying the existing MDOT micro surfacing specification and inserting some of the elements of the AASHTO micro surfacing specification. Some of the AASHTO elements that were included were: updated material requirements, updated mix design tests, a preconstruction meeting, and a quality control section. The general contractor was T.L. Wallace Construction out of Columbia, MS.

The project scope included surface preparation, calibration of the materials, and the placement of Type II micro surfacing.

Project Details At-a-Glance

Agency:	Mississippi DOT
Route/Location:	State Route 18/Clarke County, MS
Area/Length:	17.5 miles (intersection of SR 511/18 to Alabama State Line)
Pre-Condition:	Fair Condition (weighted PCR of 75)
Completion Date:	August 2021
Materials:	CSS-1EP (emulsion) ISSA Type II (aggregate) Portland Cement (mineral filler)
Application Rates:	25.4 lb/sy
Weather:	84°F, 81% humidity, partly cloudy

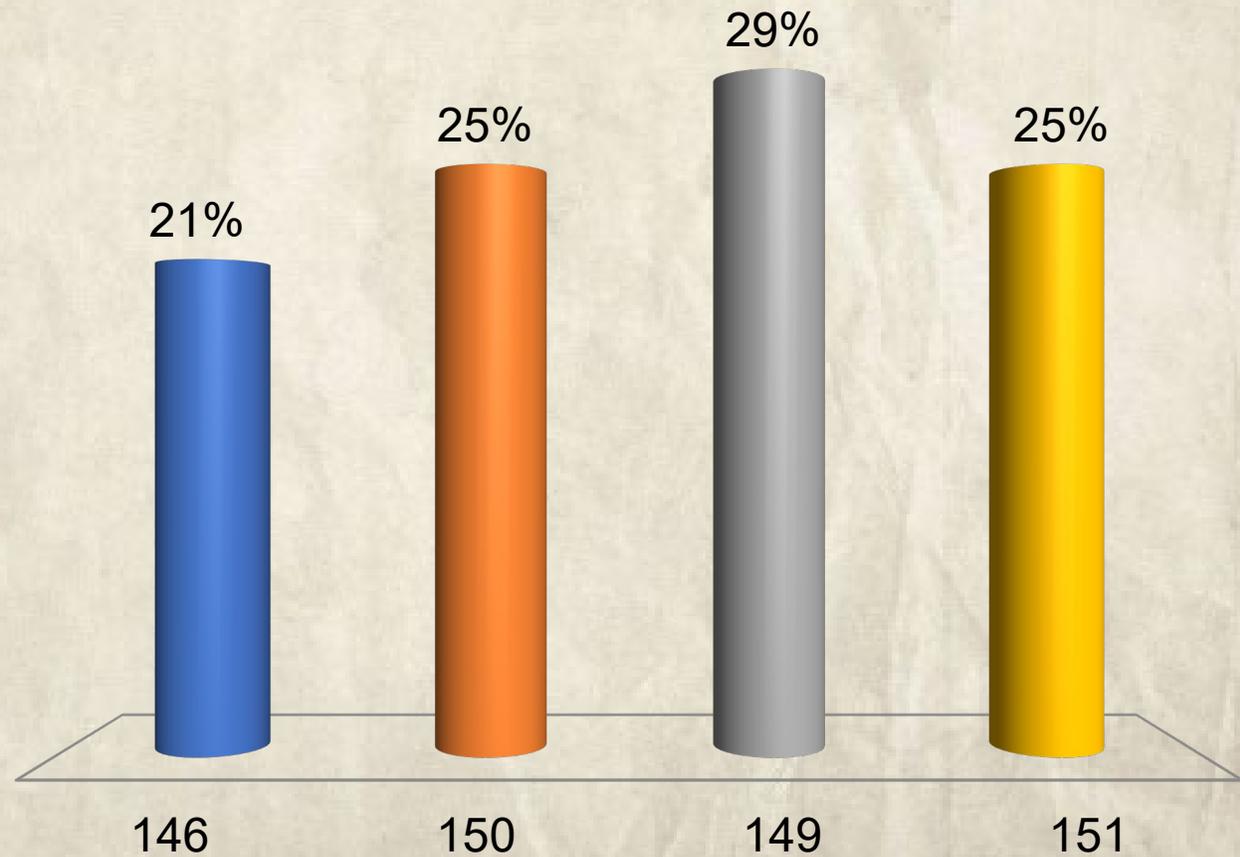


08/2022



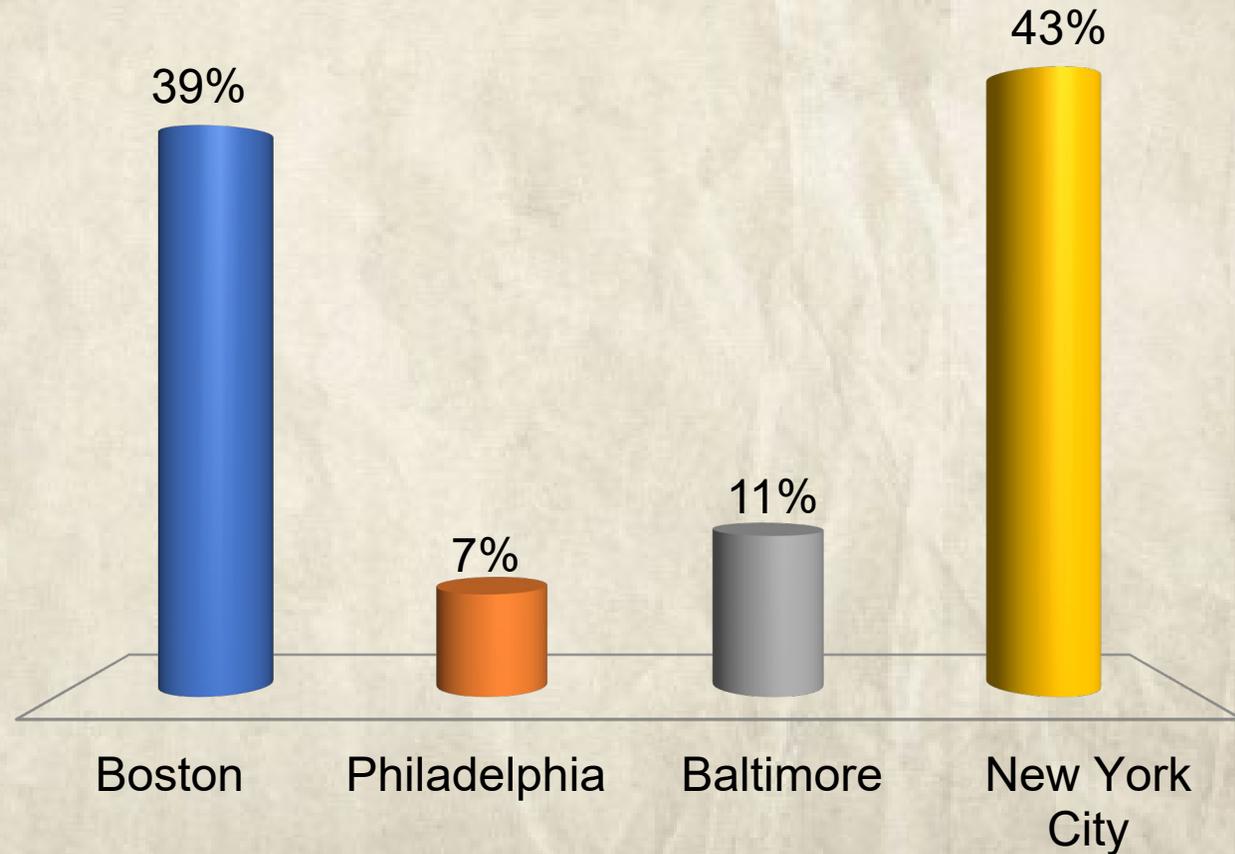
How tall is the Statue of Liberty?

- A. 146
- B. 150
- ✓ C. 149
- D. 151



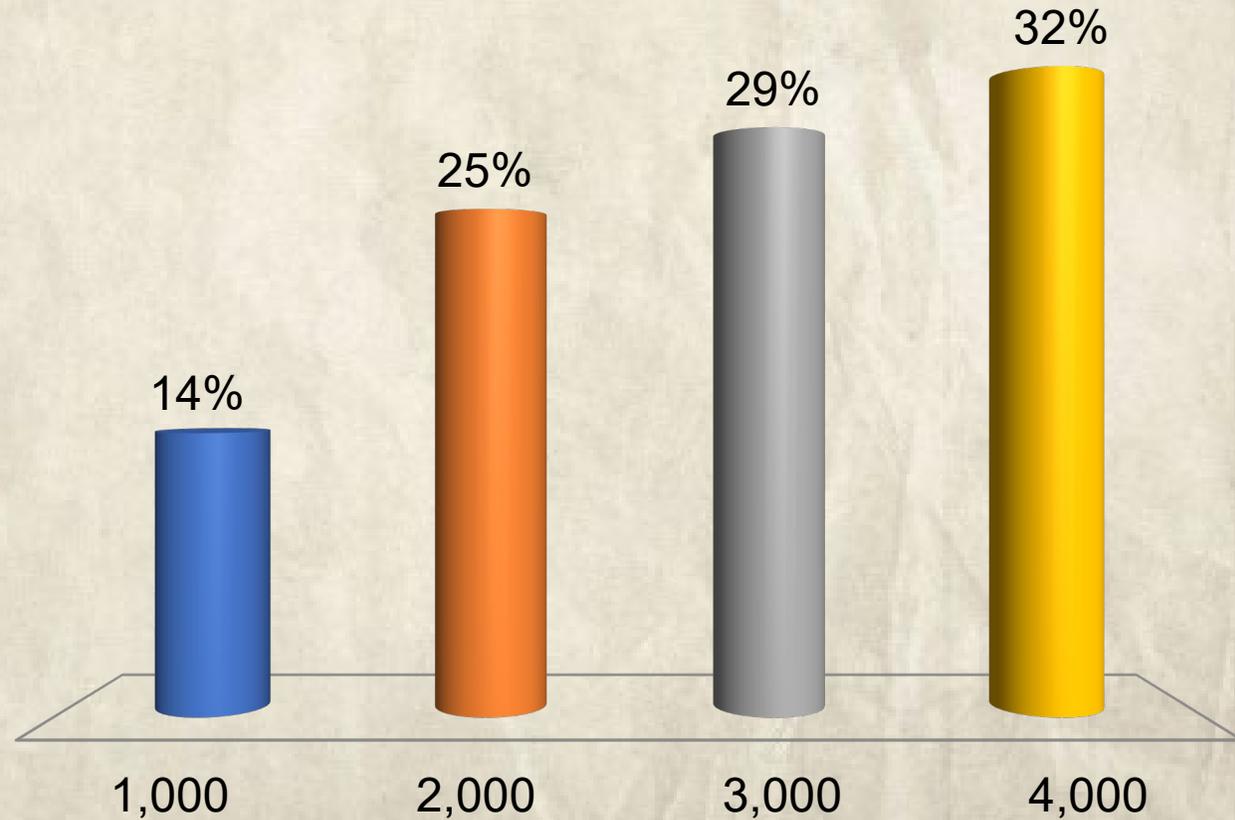
Which city has the largest 4th of July fireworks display?

- A. Boston
- B. Philadelphia
- C. Baltimore
- ✓ D. New York City



How many people become citizens on the 4th of July, on average?

- A. 1,000
- B. 2,000
- C. 3,000
- ✓ D. 4,000



Participant Leaders

Points	Participant	Points	Participant
6193.33	Badger, WPS	3692.9	Shields, Todd
5703.93	Vargas, Adriana	3637.43	L, Ryan
5546.93	Brewster, Stormy	3621.72	Durante, Colin
5345.2	Geib, Jerry	3555.48	Man, Patriot
5250.65	Knudtson, Danielle	3554.89	S, S
5161.93	Loeffler, Steven	3523.21	Jayhawk, Rock Chalk
4686.55	Weigel, Marla	3434.36	Poppa, Big
4466.1	Walbeck, Travis	3426.91	Morse, Kelly
4158.77	C, Shelly	3210.78	Roy, Aaron
4087.98	Houston, Sallie	3193.89	Biehl, Eric

Questions

