2020 Census Update

Presentation to the Census Scientific Advisory Committee
September 17, 2020

Albert E. Fontenot, Jr., Associate Director
Decennial Census Programs

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Operational Timelines: Original and Pandemic-Adjusted

Activity / Operation	Original Dates	Replan Dates
Update Leave (Stateside)	March 15 – April 17	Phased re-opening occurred between May 4 and June 12
Service Based Enumeration	March 30 – April 1	September 22 – 24
Targeted Non-Sheltered Outdoor Locations	March 31 – April 1	September 23 – 24
Group Quarters Enumeration	April 2 – June 5	April 2 – September 3
Enumeration of Transitory Locations	April 9 – May 4	September 3 – 28
Nonresponse Followup*	May 13 – July 31	August 9 – September 30
Delivery of Apportionment Data**	By Statutory Deadline: December 31, 2020	By Statutory Deadline: December 31, 2020
Delivery Redistricting Data**	By Statutory Deadline: March 30, 2021	Plan in Development

*For a period of time, NRFU was 8/11/20-10/31/20.
**For a period of time, delivery of apportionment data by 4/30/21 and redistricting data by 7/31/21, were considered.

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Completed Operations

Remote Alaska - Began on January 21, 2020. Completed on August 28, 2020, enumerating 33,749 housing units, 681 group quarters, and 131 transitory locations.   It is conducted in the outlying areas of Alaska, including approximately 220 Alaska Native villages, with the following objectives:
- Verify and update the address list and feature data for tabulation of the 2020 Census.
- Determine the type and address characteristics for each living quarter.
- Enumerate respondents at housing units (HUs), group quarters (GQs), and transitory locations (TLs) in those areas.

Update Enumerate - Began on June 14, 2020. Completed on August 31, 2020. Enumerators updated the address list and enumerated the respondents at 7,587 housing units, using paper questionnaires. The work occurred in very remote areas like the northern parts of Maine and Southeast Alaska.

Update Leave - Began on May 6, 2020. Completed on August 13, 2020. Completed 6.8M housing units. Enumerators updated the address list and left a paper questionnaire. We do this in areas where the majority of households may not receive mail at their home's physical address (like households that use PO boxes or areas recently affected by natural disasters).

Group Quarters Enumeration - Group Quarters data collection began April 2, 2020 and closed out on August 26, 2020. Over 215,000 group quarter facilities were enumerated with a completion rate of close to 100-percent. GQE types include: college/university student housing, residential treatment centers, nursing facilities/skilled-nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

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Self-Response Rate Summary
As of 11:59pm September 15, 2020

Total Self-Response Rate: 65.9%

Total Responding Housing Units: 97.5M

Responses by mode:
77.9M (79.9%) – Internet
17.9M (18.3%) – Paper
1.7M (1.8%) – Phone

Safety During Field Activities

On August 7, in a joint statement from the Census Bureau and Centers for Disease Control (CDC) on Conducting 2020 Census Non-Response Follow-Up Interviews, the CDC stated that participation in 2020 Census interviews should present a low risk of transmission of COVID-19.

Census takers are trained to rigorously and universally follow these CDC recommendations to mitigate risk of transmission:

- Wearing of face masks.
- Maintaining social distance of 6 ft. or more.
- Practicing hand hygiene.
- Not entering homes, and conducting interviews outside as much as possible or practical.

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Nonresponse Followup Field Operations – Staffing

Staffing (as of September 15, 2020):

Selections: 1,025,972

Invited to Training: 676,179

Enumerators Hired Since January 1, 2020: 426,448

Currently in Training: 69,294

Active: 224,406

Calculated Staff Needs

Remaining workload: 11,317,738 cases

Remaining weeks: 2

Average cases per week: 5,658,869

Average cases per hour: 1.55

Needed hours per week: 3,650,883

Average enumerator hours per week: 19

Required average enumerators to complete by 9/30: 192,152

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Nonresponse Followup Field Operations – Current Status

Workload (as of September 15, 2020):

National Workload: 62,962,757 Cases

Completed Workload: 51,645,019 Cases

- 82.0% Percent Complete

- 77.8% Percent Goal

Productivity:

Average Hours worked per Week: 19.3*

Average Cases Completed per Hour: 2.13

Planned Cases Completed per Hour: 1.55

*September 3, 2020 – September 9, 2020

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Housing Unit Enumeration – Current Status

State*	Percent of HUs that Self-Responded	Percent of HUs Enumerated in NRFU	Total Percent of HUs Enumerated
U.S. Total	65.9%	27.1%	93.0%
Idaho	68.9%	30.7%	99.6%
West Virginia	55.9%	43.6%	99.5%
Hawaii	62.4%	36.2%	98.6%
Washington	71.7%	26.1%	97.8%
Kansas	69.2%	28.4%	97.6%
Maine	57.7%	39.9%	97.6%
Indiana	69.7%	27.8%	97.5%
Wisconsin	71.7%	25.6%	97.3%
Connecticut	69.9%	27.3%	97.2%
Vermont	59.8%	36.8%	96.7%
Oregon	68.5%	28.1%	96.6%
Minnesota	74.5%	21.9%	96.5%
Arkansas	60.0%	36.4%	96.4%
Missouri	65.2%	30.4%	95.6%
Illinois	70.4%	25.1%	95.5%
California	68.4%	27.1%	95.4%
Utah	70.3%	24.9%	95.2%
Massachusetts	68.4%	26.7%	95.1%
Alaska	53.6%	41.4%	95.0%
New Hampshire	66.3%	28.7%	95.0%
Ohio	69.9%	25.1%	95.0%
Puerto Rico	34.1%	60.8%	94.9%
Maryland	70.1%	24.6%	94.8%
Pennsylvania	68.6%	26.0%	94.6%
Rhode Island	64.2%	30.2%	94.4%
Nebraska	71.2%	23.0%	94.2%

| State*	Percent of HUs that Self-Responded	Percent of HUs Enumerated in NRFU	Total Percent of HUs Enumerated
North Dakota	64.6%	29.6%	94.2%
Tennessee	65.2%	28.8%	94.0%
Virginia	70.4%	23.2%	93.6%
New Jersey	68.3%	25.1%	93.4%
New York	62.7%	30.7%	93.4%
Michigan	70.7%	22.6%	93.3%
Colorado	69.2%	23.7%	92.9%
Nevada	65.6%	27.3%	92.9%
Texas	61.6%	30.8%	92.4%
South Dakota	66.5%	25.3%	91.8%
Delaware	63.8%	27.6%	91.4%
District of Columbia	62.5%	28.9%	91.4%
Iowa	70.6%	20.2%	90.8%
Oklahoma	60.1%	30.7%	90.8%
Kentucky	67.7%	23.0%	90.7%
Wyoming	60.3%	30.4%	90.6%
Florida	62.7%	26.3%	89.0%
North Carolina	62.0%	26.5%	88.5%
Arizona	62.8%	25.2%	87.9%
New Mexico	57.0%	30.8%	87.8%
South Carolina	59.9%	27.0%	86.9%
Georgia	61.4%	25.2%	86.6%
Louisiana	59.1%	27.0%	86.2%
Mississippi	59.5%	26.7%	86.2%
Montana	59.2%	26.8%	86.1%
Alabama	62.6%	22.5%	85.0%

Note: Percentages may not sum due to rounding. A limited number of areas were part of the NRFU "soft launch" beginning July 16 and could have higher completion rates due to more time in the field. Percentages for the U.S. Total do not include housing units in Puerto Rico.

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California Wildfires

Northern California
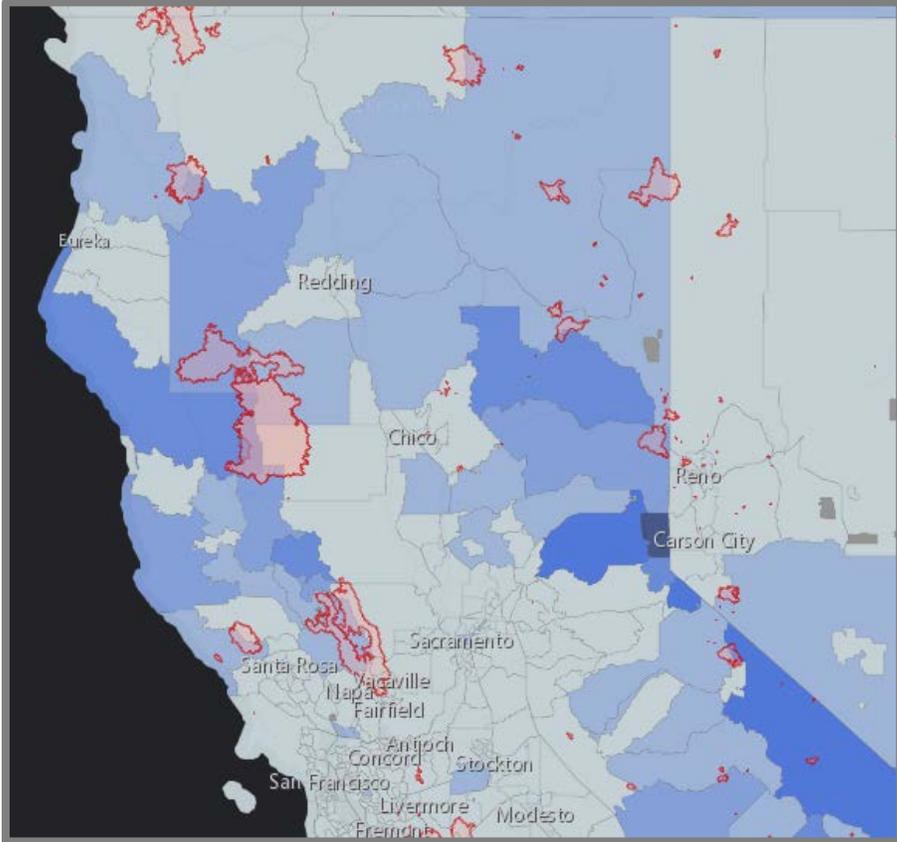
Southern California
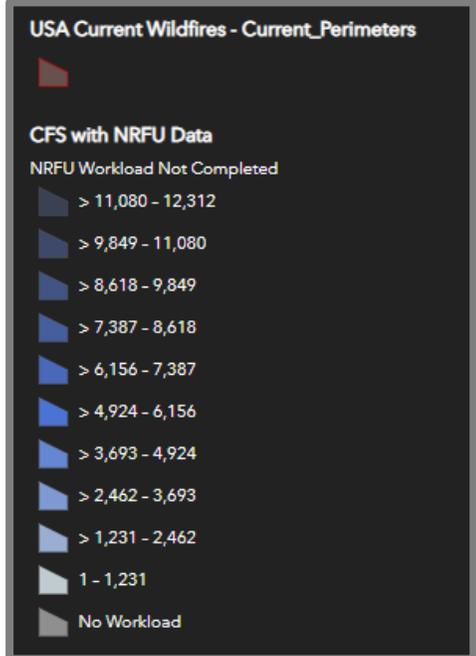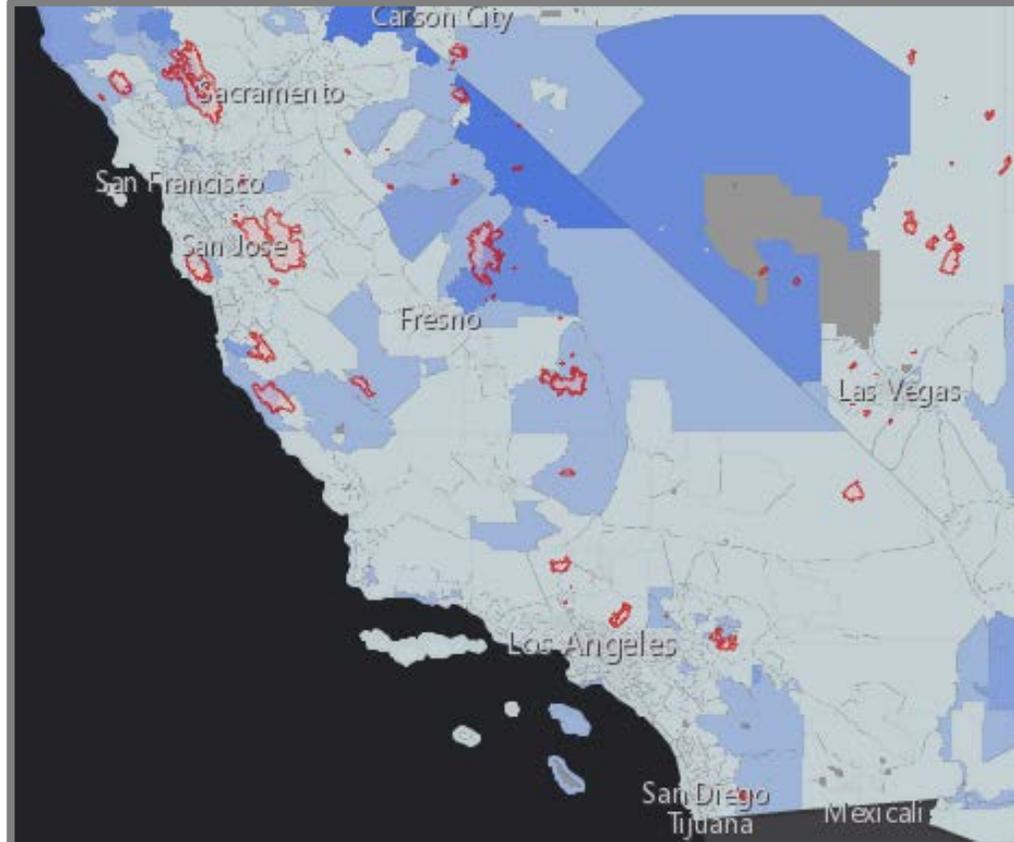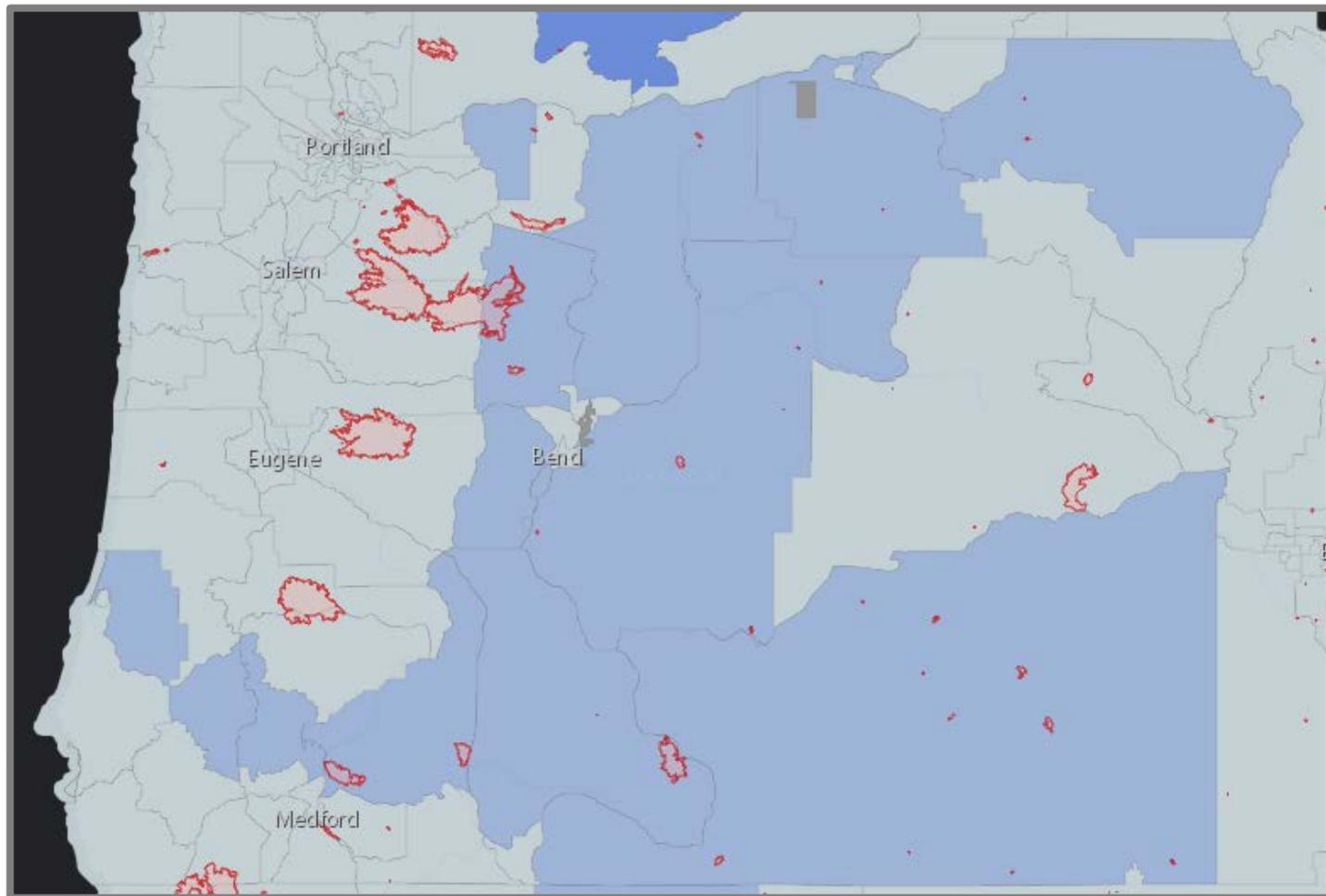
USA Current Wildfires - Current_Perimeters

CFS with NRFU Data
NRFU Workload Not Completed
- > 11,080 – 12,312
- > 9,849 – 11,080
- > 8,618 – 9,849
- > 7,387 – 8,618
- > 6,156 – 7,387
- > 4,924 – 6,156
- > 3,693 – 4,924
- > 2,462 – 3,693
- > 1,231 – 2,462
- 1 – 1,231
- No Workload

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Oregon Wildfires

Washington Wildfires

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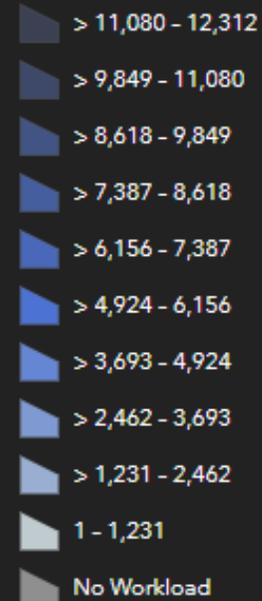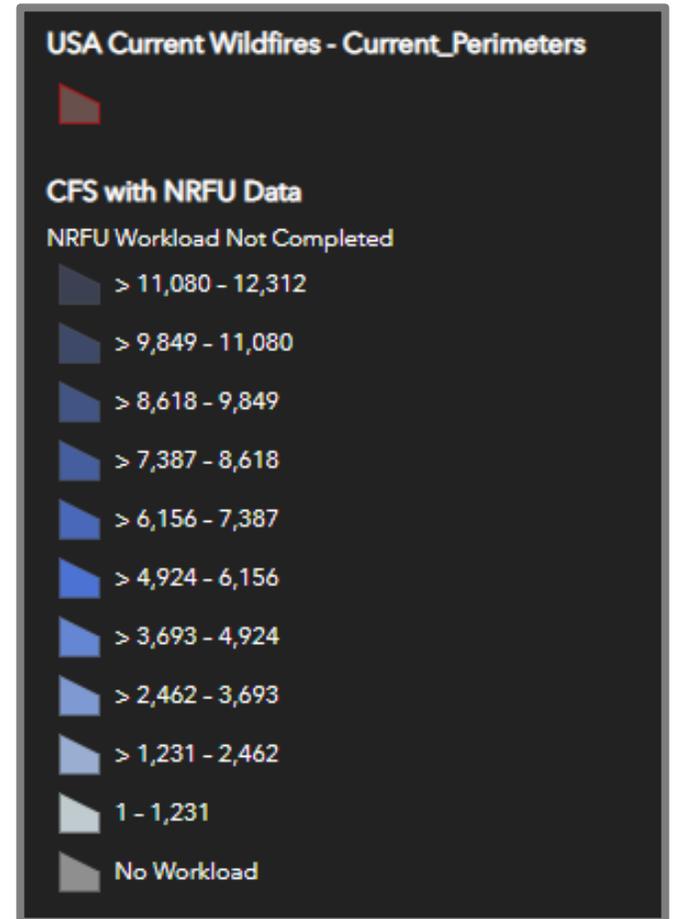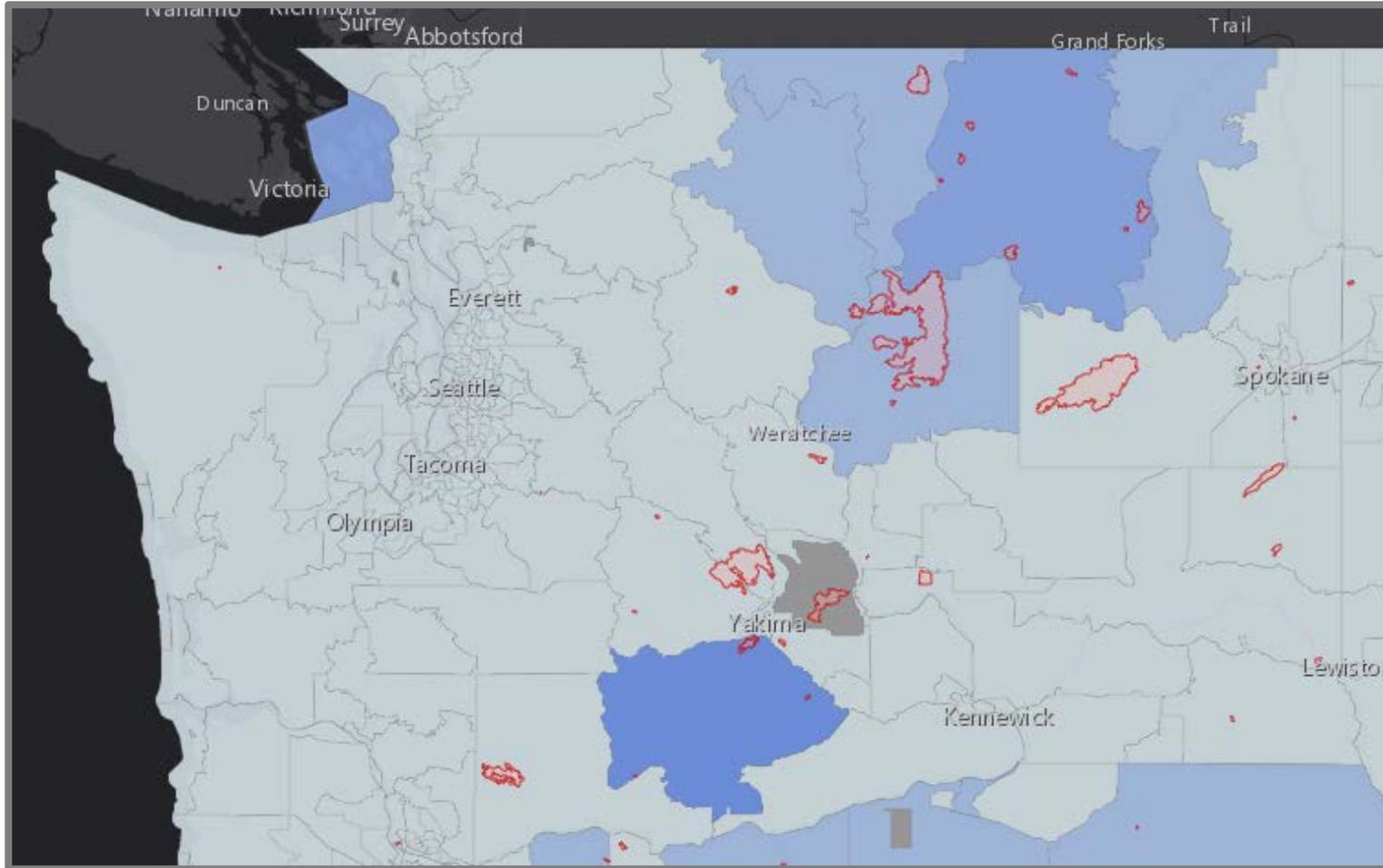
Air Quality

Northern West Coast
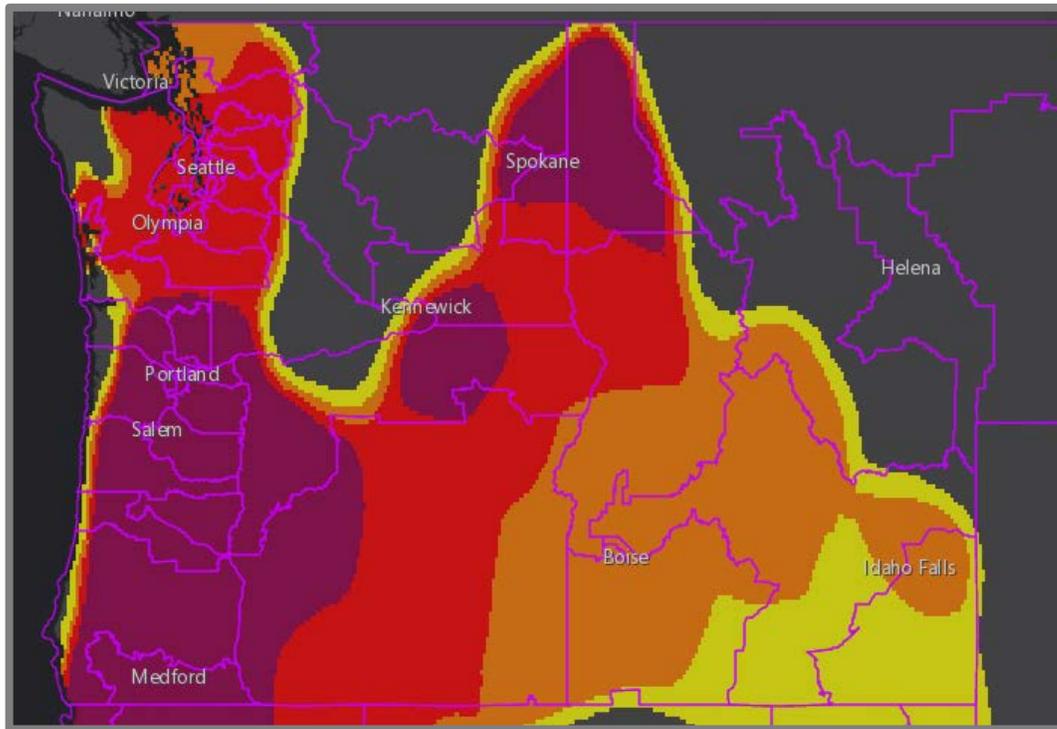
Southern West Coast
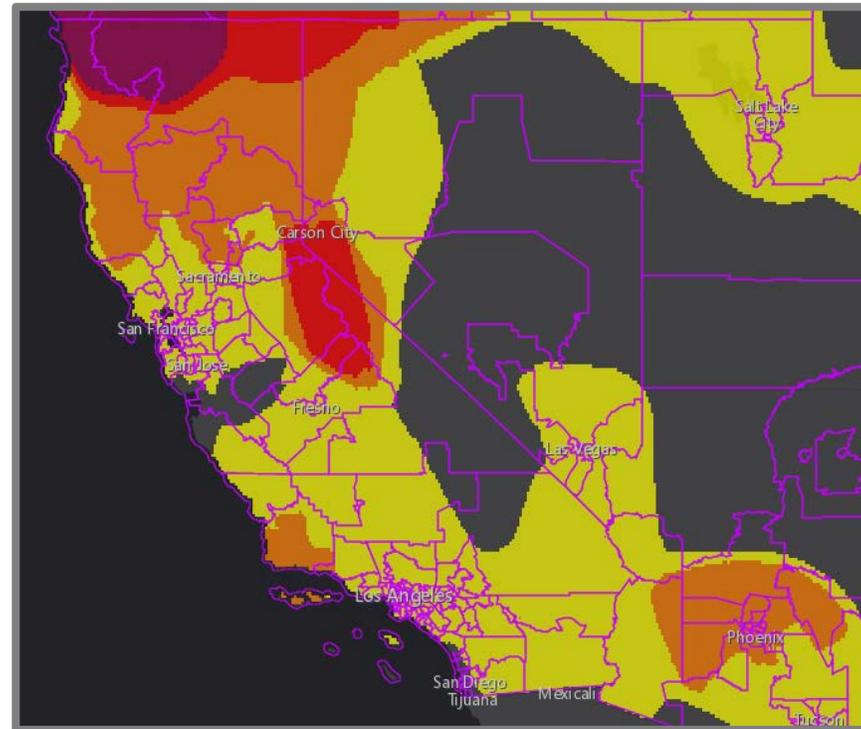
Air Quality Index comes from Tomorrow's AQI.

Tropical Storm Sally
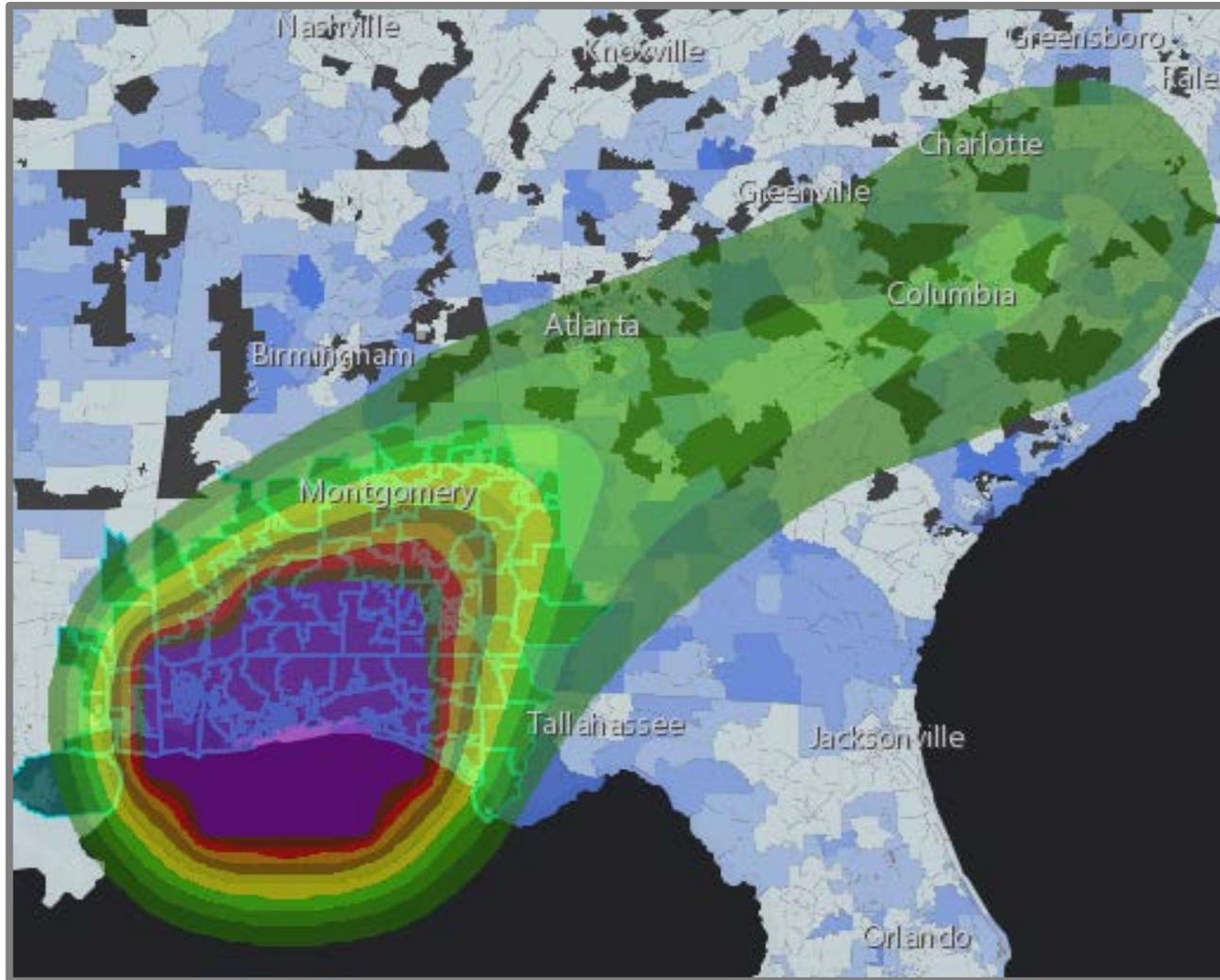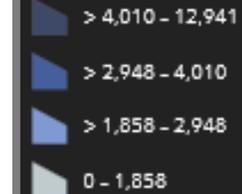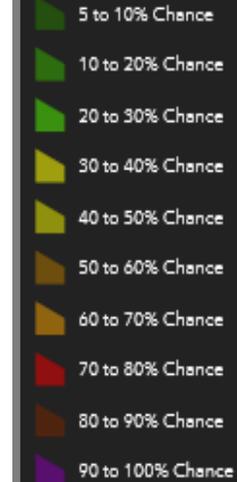
Enumeration at Transitory Locations (ETL)

The goal of the ETL operation is to enumerate individuals in occupied units at transitory locations who do not have a Usual Home Elsewhere (UHE). A transitory location is a location that is comprised of living quarters where people are unlikely to live year round, due to the transitory/temporary/impermanent nature of these living quarters. Enumerators will canvass a transitory location in one visit to enumerate all occupied transitory units. Data collection for the ETL operations began on August 31, 2020 and will be completed by September 28, 2020.

Transitory locations include: Recreational Vehicle Parks, Campgrounds, Racetracks, Circuses, Carnivals, Marinas, and Hotels.

Enumeration at Transitory Locations Progress – As of September 15, 2020

Initial Workload	Cases Added	Total Workload	Completed & Closed Cases	Current Workload	Percent Completed & Closed
61,853	627	62,480	47,947	14,533	76.7%

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2020 Census Service-Based Enumeration (SBE) Overview

Background

The SBE operation is conducted at service-based locations and targeted non-sheltered outdoor locations (TNSOLs) to enumerate people experiencing homelessness. These service locations include: emergency and transitional shelters (with sleeping facilities) for people experiencing homelessness, soup kitchens, and regularly scheduled mobile food vans.

Prior to operational adjustments made in lieu of COVID-19, SBE was scheduled to be conducted March 30 – April 1.

Consulted With Major Stakeholders

- In late May/early June we consulted with 67 national and local organizations to assist the Census Bureau in determining the best date to conduct SBE/TNSOL.

- Based on the feedback from our stakeholders, input from Census experts, and consultation with operational team leads, we have selected September 22 – 24 as the dates to conduct SBE and TNSOL.

Current Status

- Updating TNSOLs locations and making appointments with service providers.

- Current SBE workload: 49,045 (as of September 15, 2020)

  - TNSOLs: 33,604

  - Emergency and Transitional Shelters: 9,726

  - Soup Kitchens: 5,081

  - Regularly Scheduled Mobile Food Vans: 634

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Ensuring Quality of Data Collected during Field Operations

- **Employing** expanded technical capacity to conduct analytical Re-Interview selection as the basis for the Re-Interview process.

- **Utilizing** new techniques for the 2020 Census to monitoring quality:

  - **Using** statistical techniques with professional statisticians and analysts to proactively identify, monitor, evaluate, and resolve quality issues.

  - **Analyzing** data and metrics to identify and investigate outliers and other unusual activity.

- **Increasing** efficiency of our strategy for verifying vacant or non-existing Housing Units.

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Ensuring High Quality Data from the 2020 Census

Special teams with expertise from within the entire Census Bureau in the fields of census operations, statistical methodology, acquisition and utilization of administrative records, and in the social, economic, and housing subject areas to supplement the existing expert teams and provide extra focus on data quality.

Working Groups	Objectives	Deliverables
Lead Operational Update Team **Administrative Records Usage Team** **Demographic and Housing Reasonableness Review "CUF/CEF"** **Demographic Analysis and Population Estimates** **Post Enumeration Survey** **Current Surveys Field Experience Team***	**Existing Teams**: • Continue current work **New + Existing Teams**: • Identify new/emerging ways to assess and/or ensure quality (real time and post-data collection)	Operational changes and data quality assessments will be documented by the **Data Quality Documentation Team***

*New team, not previously part of 2020 Census operations

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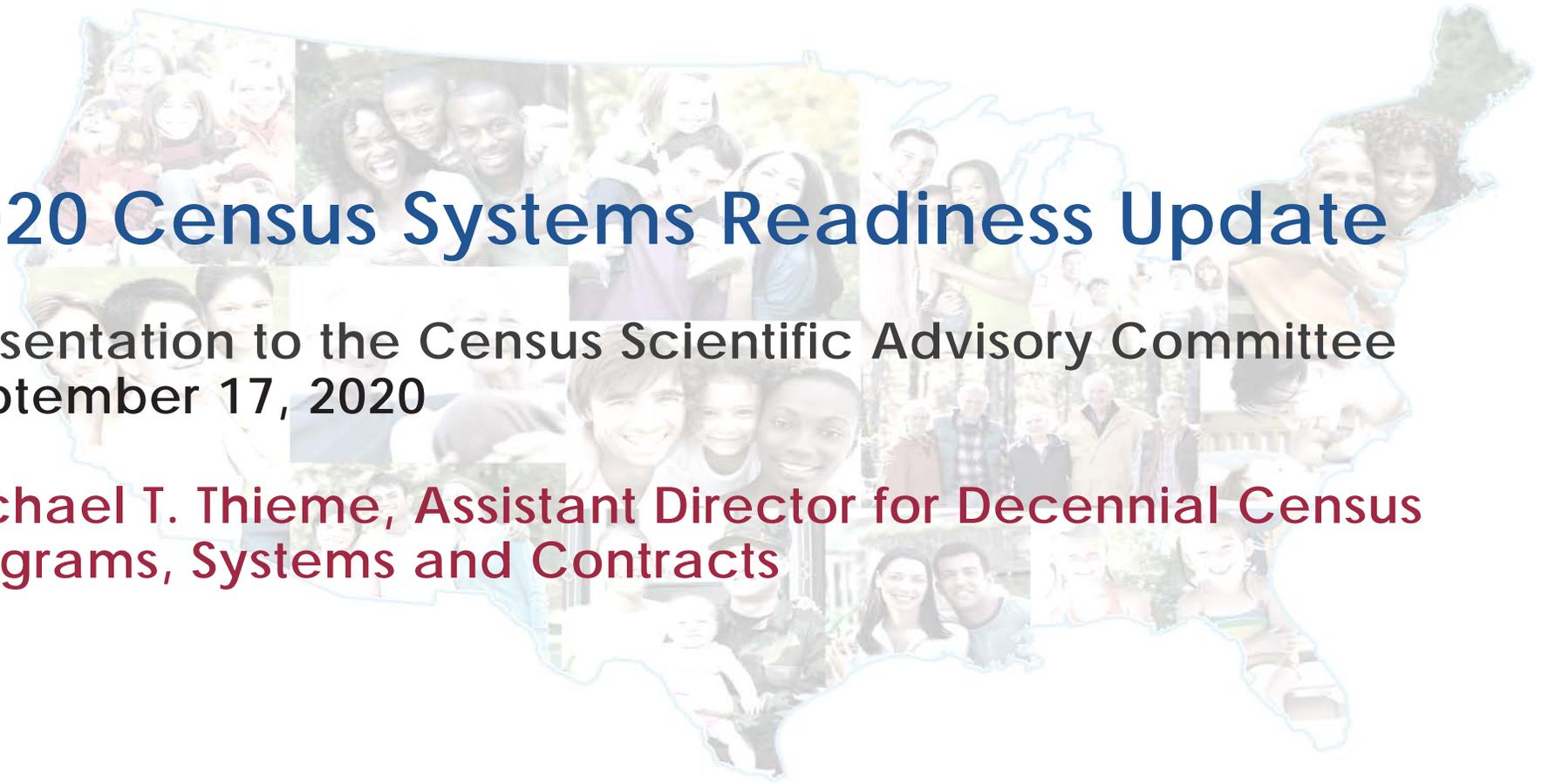
2020 Census Systems Readiness Update

Presentation to the Census Scientific Advisory Committee
September 17, 2020

Michael T. Thieme, Assistant Director for Decennial Census Programs, Systems and Contracts

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2020 Census System Successes (so far, so good)

✓ Address Canvassing

✓ Early Operations

✓ **Internet Self Response (ISR)**

✓ **Census Questionnaire Assistance (CQA)**

✓ **Nonresponse Followup**

Processing

Dissemination

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ISR (Primus) Peak Operation Weeks

- *Average sessions per hour:* 317K
    - *Average sessions per daily peak time (10a – 9p, EDT):* 2.1M
- *Maximum sessions encountered in one hour:* 600K
    - (3/23/2020 9pm – Facebook/Instagram event)
- *Average concurrent users (24hr period):* 18K
    - *Average concurrent users per daily peak time (10p – 9p, EDT):* 30K
- *Maximum concurrent users encountered to date:* 80K
    - (3/23/2020 – Facebook/Instagram event)
- *Average respondent submissions per day during peak:* 2.5M
- *Average respondent time to complete Census:* 9 minutes

** NOTE: all statistics are calculated from 3/12/20 – 3/30/20.

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ISR Operational Successes

ISR is still in production collecting data, and there has been zero downtime since March 12, 2020. As of September 15, 2020, we have had 97.5M successful responses through ISR.

Success Factors

- Separated data collection mechanisms from backend and regional dependencies
- Close working partnership with primary Cloud service provider
- Content Distribution Network for Edge Services and Security
- Production Validation Activities to Fully Test Actual Production Infrastructure and Systems
- Developed, Tested, and Operationalized Primary and Secondary ISR Instruments to Provide Robust Contingency Options

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ISR Support Model and Security

- Established a Chief (and Deputy) Engineer of Operational Readiness

- Established an ISR Rapid Response Team

- Virtual 'War Room' and RRT Text Group

- Contain and Sustain

- Agile Dashboard Development for Systems, Security, and Operations

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Spotlight on the ISR Non-ID Survey Pathway

Allowed respondents to submit survey data without an individual Census ID

- Closely Monitored
  - Prominent on the ISR monitoring dashboard
  - Alerts generated for excessive non-ID activity – tracking demand model
  - Alerts and daily reports generated for excessive, single-origin sessions
  - Survey completion status dashboard developed to track non-ID path advancement

- Highly Restricted
  - Extreme rate limiting restrictions – minimum transactions permitted
  - Leveraged advanced bot-blocking technology to prevent bot behavior (known and predicted) based on intelligence and end-user browser telemetry
  - Firewalls are tuned to exact paths, allowed parameters, and cookies

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ISR Session Tracking
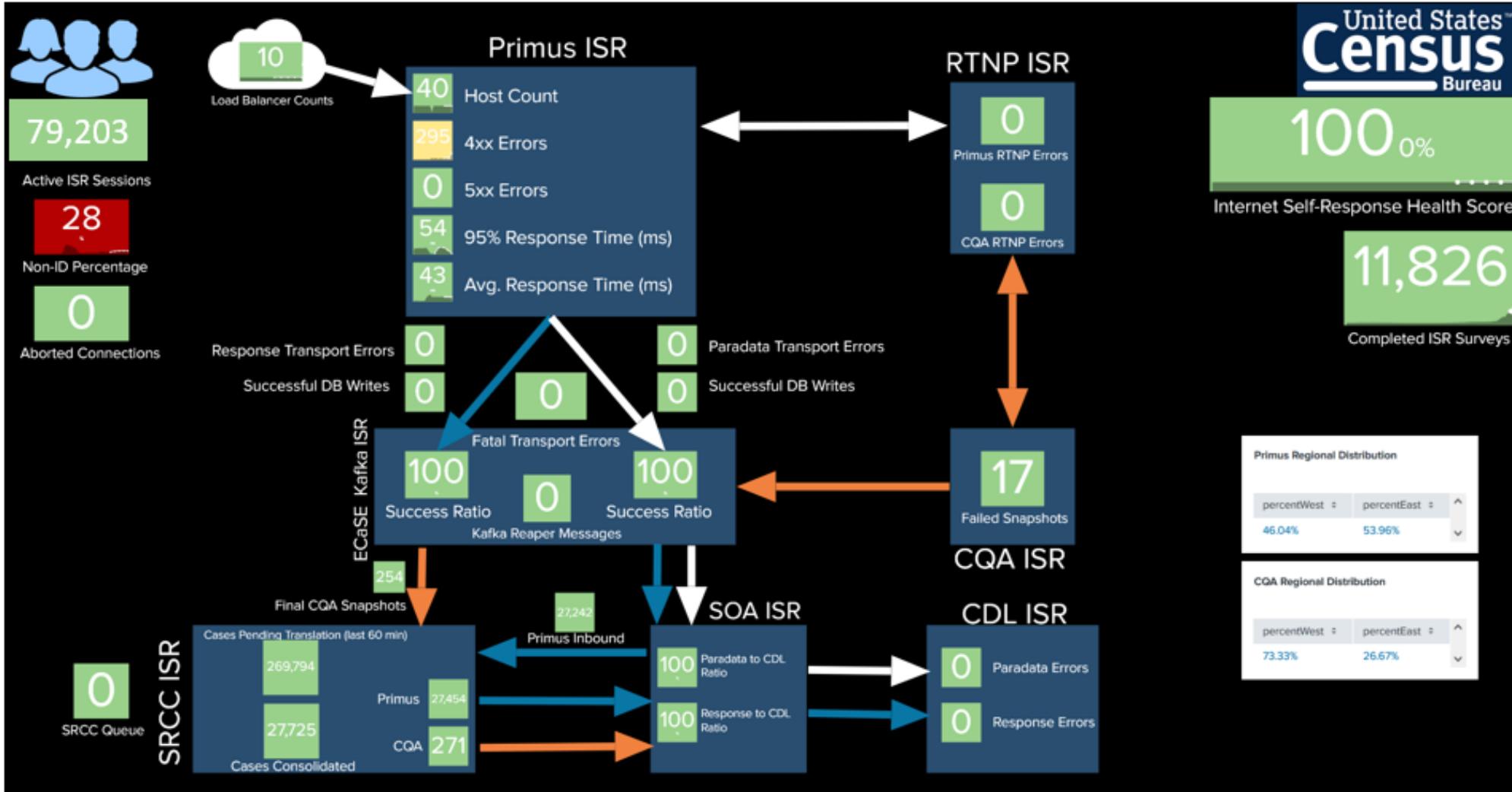
CQA Operational Successes

CQA is still in production collecting data, assisting callers, and making outbound coverage improvement calls. There has been zero downtime since March 12, 2020.

As of September 15, 2020 we have:

- Received 12,813,100 inbound calls
- Offered 4,828,736 of those calls to CSRs
- Dispositioned 53.2% of the calls offered to CSRs as enumeration
- Received 8,398,008 Coverage Improvement case
- Closed 2,836,612 Coverage Improvement cases, 53.8% closed with a completed interview

Success Factors

- Flexible and adaptable during a frequently changing pandemic landscape

    - Implemented schedule blocks (for social distancing) regular deep cleanings, and full site decontaminations on weekends and when necessary after positive COVID-19 case(s) were reported (March 2020)

    - Developed "call back" feature for respondents to leave phone number and receive a return call during high call volume times from "work at home" staff (April 2020)

    - Ended schedule blocks (replaced by sizing to social distance capacity within the contact centers), enforced more stringent PPE guidelines for all staff, employed "clear-to-work" health assessments, and added mid-day wellness temperature checks (May-June 2020)

    - Adjusted focus from "self-service" to "customer service" making it easier for callers to reach CSRs (April 2020)

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ENUM Peak Operations

- Maximum users in a 24hr period: 233K (8/19/2020)
  - Average daily unique FDC users: 213K (8/9 – 9/16)
  - Maximum average weekly unique FDC users: 225k (8/21 – 8/27)
- Unique FDC users to date: 431K
- Maximum daily cases completed to date: 1.2M (8/20/2020)
  - Cumulative cases completed: 37.9M (7/1 – 9/16)
  - Average completed cases per day: 492K (7/1 – 9/16)
  - Cumulative average cases completed per hour: 21K (7/1 – 9/16)
- Maximum daily cases worked to date: 3.7M (8/20/2020)
  - Cumulative cases worked: 113M (7/1 – 9/16)
  - Cumulative Average cases worked per day: 2.9M (8/9 – 9/16)
  - Cumulative Average cases worked per hour: 124K (8/9 – 9/16)
- Maximum daily T&E submission to date: 203K (8/13/2020)
  - Average T&E submissions per day: 174K (8/9 – 9/16)

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ENUM Operational Successes

ENUM continues in production collecting data in the field. The system has assigned more than 113 million cases to Enumerators, who have completed 37.9 million cases as of September 16, 2020.

Success Factors

- NRFU Operation began with Soft Launch and a phased Full Launch.
- System flexibility accommodated changes to schedule and requirements.
- Provisioning 248 independent clusters (one per ACO) localized impact of any issues or downtime and facilitated scheduled maintenance by time zone.
- FDC instrument allowed on-the-fly switching between English and Spanish.

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Benefits of ENUM/FDC Architecture

- Mobile Architecture

    - Offline case processing capability

    - Highly efficient sync protocol.

- Separate data collection mechanism from backend processing

    - The ENUM FDC mobile application is responsible for data collection

    - FOCS is responsible for processing the Cases and communicating with non-ECaSE applications.

    - Insulates the data collection process from possible back-end processing issues, keeping the field staff up and running.

- Paradata is stored separately from case response data during collection

    - Isolating paradata from response data allowed prioritization of response data sync and reduced payload size and sync processing time.

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ENUM/FDC Performance Monitoring and Support

- Robust Monitoring – App and Infrastructure

- Robust Performance Testing

- Development of Production Support Portal

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Handling Operational Challenges

- Circuit Reliability

  - Experienced a wide variety of vendor-related circuit outages and degradation

  - Fiber cuts, LEC outages, and Managed Trusted Internet Protocol Service (MTIPS) hardware failures have occurred far more frequently than expected

  - Circuit redundancy, provider diversity, and multiple failover paths have proved invaluable

  - Cross-region session replication played a key role in mitigating circuit-related respondent impact

- Rare Browser Use Cases

  - Despite extensive browser testing a low level of false-positive bot blocks were observed during early operations impacting a particular family of browsers

  - Collaborated with vendors and determined unique conditions could produce a conflict of the site's content security policies (CSP), producing a false-positive block

  - Closely monitoring and understanding browser-based security controls will allow for early detection and quick resolution of emerging issues

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Thank You

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