HUD IT Summit

Washington, D.C.

June 4, 2018
IT SUMMIT

Agenda:

**Welcome Remarks (DJ LaVoy)**
ISDV Overview (George Forbes)
Protocol (Brendan Dowd)
Decision Trees (Kim Scoles)
Break
VEDGA Overview (Eric Krapf)

June 4, 2018
What to Expect

• HUD will be discussing where we are today.
  o HUD will be discussing a plethora of technical topics, such as Decision Tree logic, the Defect Dictionary, and forecasted architecture.
  o Participants are asked to provide information, feedback, and comments on these topics.
  o The goal is to help HUD better shape future IT solutions and business processes surrounding UPCS-V.

• Participant/Industry input
  o There is no intent or expectation to reach agreement or consensus.
  o All comments/concerns/alternative ideas are welcomed.
  o This session does not constitute an agreement of an IT solution or change in business process, but the session is designed to share information to help HUD shape future system builds.

• HUD encourages PHA and industry partner engagement throughout future development processes.

• The topics being discussed throughout the agenda are not finalized.

• Any development made by industry is at the vendor discretion.
Other Items

- **Cell Phones**
  - Please remember to turn off cell phones or put your phone on vibrate.
  - If you need to leave in the middle of a discussion, please do so quietly.

- **Valuables and Materials**
  - Please take valuables (phones, purses, etc.) with you on break.

- **Questions and Comments**
  - Feel free to ask questions throughout the presentation.
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June 4, 2018
## Inspection Standards & Data for Vouchers Update

<table>
<thead>
<tr>
<th>Why</th>
<th>What</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Vast majority of inspections on paper</td>
<td>• UPCS-V Protocol established</td>
</tr>
<tr>
<td>• OIG 90+ direct findings for HQS</td>
<td>• Software – Salesforce transition to open source</td>
</tr>
<tr>
<td>• Over 2,200 indirect findings</td>
<td>• Data – analysis and dissemination</td>
</tr>
<tr>
<td>• FY15 Sample (27,000 units) study discovered lack of:</td>
<td>• Capture 3 million inspections</td>
</tr>
<tr>
<td>• Objectivity</td>
<td>• Utilize Oracle tools</td>
</tr>
<tr>
<td>• Consistency</td>
<td>• Enable feedback loop</td>
</tr>
<tr>
<td>• Accuracy</td>
<td></td>
</tr>
<tr>
<td>• FY16 Appropriations authorized</td>
<td></td>
</tr>
<tr>
<td>UPCS-V Demonstration</td>
<td></td>
</tr>
<tr>
<td>UPCS-V Protocol established</td>
<td></td>
</tr>
<tr>
<td>Software – Salesforce transition to open source</td>
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<tr>
<td>Capture 3 million inspections</td>
<td></td>
</tr>
<tr>
<td>Utilize Oracle tools</td>
<td></td>
</tr>
<tr>
<td>Enable feedback loop</td>
<td></td>
</tr>
</tbody>
</table>
UPCS-V Inspections Summary

**# Inspections Conducted**: 29,132
**Target PHAs Trained: April**: 170
**# PHAs Participating**: 247

**Inspections of Record**

**PHA Training**

**PHA Training Trends**

- Trained PHAs
- Target
- Schedule Goal

### Milestones

- Inspections to Date
- Target
UPCS-V Defect Summary

Defects By Inspectable Area

<table>
<thead>
<tr>
<th>Inspectable Area</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
<td>86.3%</td>
</tr>
<tr>
<td>Health And Safety</td>
<td>9.7%</td>
</tr>
<tr>
<td>Building Exterior</td>
<td>1.3%</td>
</tr>
<tr>
<td>Site</td>
<td>1.0%</td>
</tr>
<tr>
<td>Common Area</td>
<td>0.9%</td>
</tr>
<tr>
<td>Building Systems</td>
<td>0.7%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Defects In Unit

Unit Defect Type

<table>
<thead>
<tr>
<th>Unit Defect Type</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical System</td>
<td>31.9%</td>
</tr>
<tr>
<td>Structure and Finish(es)</td>
<td>30.9%</td>
</tr>
<tr>
<td>Plumbing System</td>
<td>13.0%</td>
</tr>
<tr>
<td>Life Safety Equipment</td>
<td>10.2%</td>
</tr>
<tr>
<td>Cabinets/Countertops/Appl.</td>
<td>8.1%</td>
</tr>
<tr>
<td>Heating/Cooling/Vent.</td>
<td>3.6%</td>
</tr>
<tr>
<td>Infestation</td>
<td>2.3%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Defect Examples: Real Cases

**Structure and Finishes**

- **Entry Door Broken**
  Inspector 2
  Maricopa Housing Authority (AZ009)
  1624 S 114th Dr.

**Electrical Systems**

- **Cover Plate Broken**
  Inspector 11
  Edinburg Housing Authority (TX062)
  1908 AGUA FINA Apt. 1

**Plumbing Systems**

- **Leaking Sink**
  Inspector 3
  Weatherford Housing Authority (TX349)
  1212 W. Ball St. B
Mostly stays the same
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June 4, 2018
Why is HQS Changing?

- HUD was directed by Congress to implement a single inspection protocol for public housing and voucher units.
- HUD decided to update HQS and to align to UPCS.
- ISDV is operating under a Demonstration to create and test a new housing standard for voucher units.
- The Demonstration Period ends in July 2019.
What is the UPCS-V Protocol

• It is the set of rules and standards for conducting UPCS-V inspections.
• It includes specific Pass/Fail language for inspectable items.
• The UPCS-V Protocol is much more specific and inclusive than HQS in order to produce more accurate, consistent, and objective results.
How Did HQS Evolve Into UPCS-V?

• To build a new standard for voucher units, the initial UPCS-V drafters turned HQS’ requirements and standards into the UPCS-V Fundamental Requirements.

• The UPCS-V Fundamental Requirements serve as a basic standard for HCV units in addition to inspections of individual inspectable items.

HQS Space and Security Acceptability Requirement

“At a minimum, the dwelling unit must have a living room, a kitchen and a bathroom.”

UPCS-V Protocol Fundamental Requirement

“All Units must have a living room, a kitchen, and a bathroom at a minimum.”
Inspectable Items in UPCS-V

• Each UPCS-V inspectable item (sinks, walls, doors, etc.) has a possible deficiency with a Pass/Fail threshold.

• Additionally, UPCS-V has adopted a list of Life Threatening or Emergency (LTE) deficiencies.

• Policy items, such as timelines for repair of deficiencies, will remain the same unless changed by the Housing Choice Voucher (HCV) program office.
What’s new in Protocol Beta?

Version Number

• This protocol is called “Beta” because the document is a work-in-progress.
• It is currently being reviewed and tested.

Guiding Principles

• ISDV defined a set of Guiding Principles as common themes for the protocol.
• Simplicity & Transparency
• Alignment to UPCS
• Meeting the Objective of National Housing Policy
What’s new in Protocol Beta?

Other Changes

- Alignment to UPCS, the standards used for Public Housing inspections
- The addition of a glossary of terms
- An updated LTE (Life Threatening or Emergency) deficiency list
- The inclusion of carbon monoxide detectors as an inspectable items
- A 53% decrease in total length of the document mainly due to consolidation of redundant information
- The alphabetization of the Defect Dictionary
- An overall reorganization of the document to be more clear and consistent and to avoid redundancies
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June 4, 2018
Decision Trees
Five Inspectable Areas

- Inspection
  - Site
  - Building Exterior
  - Building Systems
  - Common Area
  - Unit
Five Inspectable Areas

Inspection

Site

Building Exterior

Building Systems

Common Area

Unit

Health and Safety

Inspectable Areas

Health and Safety
Five Inspectable Areas

- Site
- Building Exterior
- Building Systems
- Common Area
- Unit

Health and Safety

General Fundamental Requirements
## Inspectable Areas and Associated Inspectable Items

### HEALTH AND SAFETY
- Air Quality
- Electrical Hazards
- Elevator
- Emergency/ Fire Exits
- Garbage and Debris
- Hazards
- Infestation
- Lead-based Paint

### BUILDING SYSTEM
- Domestic Water
- Electrical System
- Elevator
- Emergency Power
- Fire Protection
- HVAC
- Sanitary System

### BUILDING EXTERIOR
- Doors
- FHEO/ UFAS
- Fire Escapes
- Foundations
- Lighting
- Market Appeal
- Roofs
- Walls
- Windows

### SITE
- Fencing and Gates
- FHEO/ UFAS
- Grounds
- Mailboxes
- Market Appeal
- Parking Lots/ Driveways/ Roads
- Play Areas and Equipment
- Pools and Related Structures
- Walkways/ Steps

### UNIT
- Bathroom
- Cabinets
- Call-for-Aid
- Ceiling
- Countertops
- Doors
- Electrical
- FHEO/ UFAS
- Floors
- Hazards
- Hot Water Heater
- HVAC
- Kitchen
- Laundry Area
- Lighting
- Market Appeal
- Outlets/ Switches/ Cover Plates
- Patio/ Porch/ Balcony/ Deck
- Sink
- Stairs/ Handrails
- Walls
- Walkways/ Steps
- Windows

### COMMON AREA
- Bathroom
- Cabinets
- Call-for-Aid
- Ceiling
- Countertops
- Doors
- Electrical
- FHEO/ UFAS
- Floors
- Garbage and Debris
- Hazards
- Hot Water Heater
- HVAC
- Kitchen
- Laundry Area
- Lighting
- Mailboxes
- Market Appeal
- Outlets/ Switches/ Cover Plates
- Pools and Related Structures
- Sink
- Stairs/ Handrails
- Walls
- Walkways/ Steps
- Windows
Locations Within Units and Common Areas

- Inspection
  - Site
    - Building Exterior
      - Building Systems
        - Common Area
          - Unit
            - Bedroom (Location)
Inspectable Items

- Call-for-Aid
- Ceiling
- Doors
- Electrical
- Floor
- Hazards
- Lighting
- Outlet/Switches/Coverplates
- Walls
- Windows
Inspectable Items

- Call-for-Aid
- Ceiling
- Doors
- Electrical
- Floor
- Hazards
- Lighting
- Outlet/Switches/Coverplates
- Walls
- Windows

Fundamental Requirement

FR1?
FR2?
FR3?
Examples
<table>
<thead>
<tr>
<th>Room Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON AREA</td>
<td>Completed</td>
</tr>
<tr>
<td>UNIT IN PROGRESS</td>
<td></td>
</tr>
<tr>
<td>Kitchen</td>
<td>Completed</td>
</tr>
<tr>
<td>Bathroom</td>
<td>In Progress</td>
</tr>
<tr>
<td>Living Area</td>
<td>Not Started</td>
</tr>
<tr>
<td>Bedroom</td>
<td>Not Started</td>
</tr>
<tr>
<td>Dining Area</td>
<td>Not Started</td>
</tr>
<tr>
<td>Porch/Patio/Balcony</td>
<td>Not Started</td>
</tr>
<tr>
<td>Laundry Room</td>
<td>Not Started</td>
</tr>
<tr>
<td>Storage/Utility Room</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
Does Bathroom exist?

Yes

No
<table>
<thead>
<tr>
<th>Component</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabinets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call-For-Aid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical Systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaust Fan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot Water Heater</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outlet / Switches</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shower / Tub</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### DOORS (INSPECTABLE ITEM)

- [ ] Door Caulking/Seals (Deteriorated/Missing)
- [ ] Door Frames/Threshold/Lintels/Trim (Damaged)
- [ ] Door Hardware/Locks (Damaged)

**Door Surface (Holes/Paint/Rust/Glass) (Damaged)**

- [ ] Door Surface (Holes)
- [ ] Door Surface (Paint)
- [ ] Door Surface (Rust)
- [ ] Door Surface (Glass)
- [ ] Doors (Missing)

**Doors (Screen/Storm/Security) (Damaged/Missing)**

- [ ] Doors (Screen/Storm/Security) (Damaged Not Functioning)
- [ ] Doors (Screen/Storm/Security) (Damaged Missing)
234 Fox Parkway, CA

DOOR SURFACE (PAINT) (DEFICIENCY)

- [ ] Any peeling **/ cracking **/ no paint
- [ ] NOD (No Deficiency)

Go Back
Any peeling **/ cracking **/ no paint

NOD (No Deficiency)

** Lead-based Paint(Observed) - Health and Safety(LTE)

Any surface show signs of detiorated paint in a unit built before 1978 and will be occupied by a family with a child under 6 years of age

Yes  
No
DOOR SURFACE (PAINT) (DEFICIENCY)

- Any peeling **/ cracking **/no paint
- NOD (No Deficiency)

** Lead-based Paint (Observed) - Health and Safety (LTE)

Any Surface show signs of deteriorated paint in a unit built before 1978 and will be occupied by a family with a child under 6 years of age

[Select Image]
<table>
<thead>
<tr>
<th>DOORS (INSPECTABLE ITEM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Door Caulking/Seals (Deteriorated/Missing)</td>
</tr>
<tr>
<td>○ Door Frames/Threshold/Lintels/Trim (Damaged)</td>
</tr>
<tr>
<td>○ Door Hardware/Locks (Damaged)</td>
</tr>
<tr>
<td>Door Surface (Holes/Paint/Rust/Glass) (Damaged)</td>
</tr>
<tr>
<td>○ Door Surface (Holes)</td>
</tr>
<tr>
<td>○ Door Surface (Paint)</td>
</tr>
<tr>
<td>○ Door Surface (Rust)</td>
</tr>
<tr>
<td>○ Door Surface (Glass)</td>
</tr>
<tr>
<td>○ Doors (Missing)</td>
</tr>
<tr>
<td>○ Doors (Screen/Storm/Security) (Damaged/Missing)</td>
</tr>
<tr>
<td>○ Doors (Screen/Storm/Security) (Damaged Not Functioning)</td>
</tr>
<tr>
<td>○ Doors (Screen/Storm/Security) (Damaged Missing)</td>
</tr>
</tbody>
</table>
DOOR HARDWARE/LOCKS (DAMAGED) (DEFICIENCY)

- One door does not function as it should or cannot be locked because of damage to the door’s hardware, excluding Unit entry doors.
  - OR - Any Unit entry door does not function as it should or cannot be locked because of damaged or missing door hardware.
  - OR - Any fire/emergency door does not function as it should or cannot be locked because of damaged or missing door hardware.

- NOD (No Deficiency)
DOOR HARDWARE/LOCKS (DAMAGED) (DEFICIENCY)

- One door does not function as it should or cannot be locked because of damage to the door's hardware, excluding Unit entry doors.
- One door's panic hardware does not function as it should. —OR— Any Unit entry door does not function as it should or cannot be locked because of damaged or missing door hardware.
- One door's panic hardware does not function as it should. —OR— Any fire/emergency door does not function as it should or cannot be locked because of damaged or missing door hardware.
- NOD (No Deficiency)

Photo

Photos Taken

[Select Image]
<table>
<thead>
<tr>
<th>HEALTH AND SAFETY (INSPECTABLE ITEM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality – Health and Safety</td>
</tr>
<tr>
<td>● Mold and/or Mildew (Observed)</td>
</tr>
<tr>
<td>● Propane/Natural Gas/Methane Gas (Detected)</td>
</tr>
<tr>
<td>● Sewer Odor (Detected)</td>
</tr>
<tr>
<td>Electrical Hazards – Health and Safety</td>
</tr>
<tr>
<td>● Wires/ Panels (Exposed)</td>
</tr>
<tr>
<td>● Wires/ Panels (Open/Cover Missing)</td>
</tr>
<tr>
<td>● Water Leaks (on or Near Electrical Equipment)</td>
</tr>
<tr>
<td>● Other Electrical Hazards</td>
</tr>
<tr>
<td>Elevator – Tripping – Health and Safety</td>
</tr>
<tr>
<td>● Elevator – Tripping</td>
</tr>
<tr>
<td>Emergency/Fire Exit – Health and Safety</td>
</tr>
<tr>
<td>● Emergency/Fire Exit (Blocked/Unusable)</td>
</tr>
<tr>
<td>● Exit Signs (Missing) – Emergency/Fire Exit</td>
</tr>
<tr>
<td>● Exit Signs (Inoperable Illumination) – Emergency/Fire Exit</td>
</tr>
<tr>
<td>Garbage and Debris – Health and Safety</td>
</tr>
<tr>
<td>● Garbage and Debris (Indoors)</td>
</tr>
<tr>
<td>● Garbage and Debris (Outdoors)</td>
</tr>
<tr>
<td>Hazards – Health and Safety</td>
</tr>
</tbody>
</table>
FLAMMABLE/COMBUSTIBLE MATERIALS (IMPROPERLY STORED) (DEFICIENCY)

- Flammable materials or combustible materials are improperly stored near a heat or electrical source, causing the potential risk of fire or explosion.

- Storage of liquid or natural gas inside the living space of a unit.

- NOD (No Deficiency)
FLAMMABLE/COMBUSTIBLE MATERIALS (IMPROPERLY STORED) (DEFICIENCY)

- Flammable materials or combustible materials are improperly stored near a heat or electrical source, causing the potential risk of fire or explosion.
- Storage of liquid or natural gas inside the living space of a unit.
- NOD (No Deficiency)

Photo

Photo(s) Taken

Select Image

Go Back
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Overview
VEDGA Components (Currently)

• Web Services
• Inspection Mobile Application
Flow

- VENDOR
  - JSON
  - INSPN_ID
- SUBMISSION
- VALIDATION
- COMPLETE
- UPDATE
- ERROR
- NOTIFY
- DELETE
- RETIRE
- JSON
- No Response
Security

• Authentication and Authorization are necessary to access the web service APIs and swagger page.
• Authentication is performed (currently) by Siteminder.
• Authorization is performed (currently) by WASS.
• Vendors will need to have access to a HUD ID and provide it to IT Team.
• We set up access for that HUD ID in WASS for VEDGA.
• Certification Process TBD
Web Services in Development

• POST /inspections/vedga/ - allows submission of Inspection in JSON (will contain associated pictures).

• GET /inspections/vedga/status/{inspectionId} - allows get of the status of the Inspection submission.

• GET /inspections/vedga/validate/ - allows pre-validation of the Inspection JSON before final submission to HUD.
Web Services Planned

• PUT /inspections/vedga/{inspectionId} - This will allow for partial submissions and updates to an existing Inspection.

• DELETE /inspections/vedga/{inspectionId} - allows deletion of an already submitted Inspection.

• GET /inspections/vedga/data/{inspectionId} – allows get of an already submitted inspection.

• GET /inspections/vedga/status/ - allows get of the status of all inspections submitted by the logged in PHA.

• GET /inspections/vedga/decisiontree/{versionId} – provides the requested decision tree in JSON.
Swagger Page Demo

URL: https://hudapps.hud.gov/picngdemo/inspection/swagger-ui.html#/inspections

Sample JSON:

{
"header":{
"submissionType":"INSPN"},
"agency":{
"phaName":"Kihn LLC","phaCode":"CA001"},
"unitOccupied":{
"address":{
"street":"123 Street","apartment":"123","city":"New York","state":"NY","zip":"1234","zipPlus":null}
},
"defect":{
"phaInspectionId":"7777","inspectableArea":"unit","location":"kitchen","item":"sink","defect":"broken","decision":"fail","healthSafetyHazard":null}
}
Protocol Conversion

- Inspection
- Observation
  - Inspectable Area
  - Location
  - Item
  - Defect
  - Decision
Inspection

- Inspection ID – Generated by HUD-REAC
- PHA's Inspection ID – PHA's unique identifier for the inspection (optional)
- The Unit Information (Address / HUD-REAC Unit Identifier)
- The Owner Information (Name / TIN)
- The Inspector Info (Name / Inspector ID)
Defect Index Number System

• INSPN_AREA_LCTN_ID – Inspection Area Location ID
• AREA_ID – Area ID (Site, Unit, Common Area)
• LCTN_ID – Location ID (Bedroom, Bathroom, None)
• LCTN_CNT – Location Count (Bedroom 01, Bedroom 02, NULL)
Defect Index Number System

• OSRVTN_ID – Observation ID
• ITEM_ID – Item ID (Ceiling, Wall, Toilet)
• CNDTN_ID – Condition ID (OD, NOD, N/A)
• DFCT_ID – Defect ID (Water Stain, Broken, Leaking)
• DFCT_DCSN_ID – Defect Decision ID
• (Hole in wall is greater than 1 inch, Hole in wall is smaller than 1 inch)
• CMNT - Comment
Versioning

• The Beta version of UPCS-V will be the first version released.
• Future versions of the decision tree will be published as needed.
• Previous versions of the decision tree will be maintained for past Inspections.
Communication with SWAT

• The VEDGA team can be reached on:
  o Email: ISDV@HUD.GOV
  o Slack Channel: PIC-NG (request an invite)
Next Steps – Target Timeframe

June 2018
- IT Summit
- Beta Protocol Review Begins

July 2018
- IT Summit

Feb 2019
- Publish Beta Protocol
- Comment Period Begins
- Publish Scoring Notice

Q4 2019
- Finalized Protocol Implementation
- Regulations Finalized

Q4 2020
- Implementation
Conclusion

• Final Thoughts
• Questions and Answers
• Continue to provide your thoughts and feedback at ISDV@hud.gov.
Thank You!