**Assumptions**

Note #

1. Number of interconnected VoIP service providers subject to information collection requirements: 12 [number used on previous Appendix A versions]

Systems replacing webpage / system each year: 3 [number used on previous Appendix A versions]

1. VoIP residential penetration:

|  |  |
| --- | --- |
| YEAR | 2018 [most recent data available] |
| Accounts at year end in millions (#) | 38.6 |
| Initial registrations in year (##) | 0.6 |
| Churn in millions (###) | 7.72 |
| Other changes in millions (####) | 7.72 |
| Registrations in millions (initial+churn+other) | 16.04 |
| IVoIP phone sales (#####) | 11.17 |

 # Source: FCC Voice Telephone Services Report, Nationwide Subscriptions, Interconnected VoIP Subscriptions, Consumer-grade service. Available here: <https://www.fcc.gov/sites/default/files/vts_national_table_1.xlsx>

 ## Actual number unknown. Estimate unchanged from previous filing

 ### Percentage of VoIP customers that change providers each year: 20% [estimate used on previous Appendix A versions]

 #### Other causes of additional registration, such as laptop users registering temporary locations, expressed as registrations per total number of accounts: 20% [estimate used on previous Appendix A versions]

 ##### Estimated as New accounts + 1/3 of churn phones + 20% of prior year existing accounts (replacement phones). [formula used on previous Appendix A versions, using 2017 accounts as prior year existing accounts]

1. Annual costs for additional server space, memory, communications, and backup/recovery service associated with registration systems (per provider). [estimate used on previous Appendix A versions] $1,000
2. Hourly rate for development of web based software and internal data systems based on annual salary for 2020 GS 13 Step 5 [Washington-Baltimore-Northern Virginia] ($116,353) divided by 2000 hours to calculate hourly rate (58.17) and increased by 80% to reflect overhead and other loadings. [formula used on previous Appendix A versions] $104.71

**Assumptions – continued**

1. Hourly rate for service representatives based on annual salary for 2020 GS 7 Step 5 [Washington-Baltimore-Northern Virginia] ($55,158) divided by 2000 hours to calculate hourly rate ($27.58) and increased by 80% to reflect overhead and other loadings. [formula used on previous Appendix A versions] $49.64
2. Value of consumer time based on average hourly earnings for all private employment from

(Bureau of Labor Statistics, Average hourly earnings, Total private, April 2020) <https://www.bls.gov/news.release/empsit.t19.htm> $30.01

1. Annual programming maintenance hours associated with registration information and E911 notification systems. [estimate used on previous Appendix A versions] 300
2. Percentage of existing customers that will require telephone follow-up in order to obtain registration information and certification statement. [estimate used on previous Appendix A versions] 10%
3. Average time to contact a customer, explain the purpose of the call and obtain registration information and customer certification (hours). [estimate used on previous Appendix A versions] 0.25
4. Telephone contacts generated per hundred registrations. [estimate used on all previous Appendix A versions] 1 (1%)
5. Average service representative hours to handle each registration including time to verify that customer understands any E911 limitations. [estimate used on previous Appendix A versions] 0.15 hours or 9 minutes
6. Average customer hours to complete registration and verify that they understand the E911 limitations of providers (average for online & operator calls). [estimate used on previous Appendix A versions] 0.09 hours or 5.4 minutes
7. Number of consortiums that have developed or will develop router based gateways to relay E911 calls from Internet platforms to the E911 network. 2
8. Number of gateway routers employed in each E911 network. [number used on previous Appendix A versions] 75
9. Cost per gateway router. [number used on previous Appendix A versions] $125,000
10. Amortization period in years for router hardware [number used on previous Appendix A versions] 5
11. Connections to LEC specialized routers [numbers used on previous Appendix A versions] 200

Connections in same city. 75

Connections in different cities. 125

1. Monthly cost of connections between gateway routers and specialized routers [numbers used on previous Appendix A versions]

Connections in same city. 300

Connections in different cities. 1000

**Assumptions – continued**

1. Programmer hours needed by a service provider to develop, test & deploy and manage automated systems registering customer information to the ILEC ALI databases, under the assumption that these have largely been developed by 2008. [retained this estimate, used on previous Appendix A versions] 500
2. Monthly charge per telephone number for ILEC handling of E911 calls (includes access to ALI databases and specialized routers). [number used on previous Appendix A versions]. $0.50
3. Annual programmer time per provider to monitor storage of computerized records and perform backups (one hour per month). [number used on previous Appendix A versions] 12

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| --- | --- | --- |
|  | **Estimated Burden Hours to the Public** | **Estimated Dollar Burden to the Public** |
| **A. Collection of the “Registered Location” from each VoIP customer** |  |  |
| 1. Development and operation of registration location databases:

Annual costs for additional server space, memory, communications and backup/recovery service associated with registration systems. Annual cost x number of providers. See notes 1 and 3. |  | $12,000 |
| Annual programming maintenance associated with registration information systems and databases. Number of service providers x cost per hour x annual programming maintenance hours. See notes 1, 4 and 7. | 3,600 | $376,956 |
| 1. Cost of handling new customers, churn customers, and existing customers that register additional locations, where the customer prefers to deal with a live service representative. Included also is the cost of handling complaints and customer inquiries about the registration requirement.

Registrations x percent requiring handling x time per call x hourly rate. See notes 2, 10, 11 and 5. | 24,060 | $1,194,338 |
| 1. Burden to customers for providing information via webpage, mail, or calls to customer service.

Registrations X time per registration X value of customer time.See notes 2, 12 and 6. | 1,443,600 | $43,322,436 |
| Total burden for collection of the registered location for each customer | **1,471,260** | **$44,905,730** |

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| --- | --- | --- |
|  | **Estimated Burden Hours to the Public** | **Estimated Dollar Burden to the Public** |
| **B. Making registered location information available to or through the ALI databases** |  |  |
| 1. Annual equipment cost of VoIP gateway routers.

(Number of routers x cost per router/amortization years) x consortiumsSee notes 14, 15, 16 and 13. |  | $3,750,000 |
| 1. Monthly telecommunications costs of connections between gateway routers and ILEC Selective Routers.

[(number of connections in same city x cost of connections in same city x 12 months) + (number of connections in different cities x cost of connections in different cities x 12 months)]x consortiumsSee notes 17, 18 and 13. |  | $3,540,000 |
| 1. Programming and operations cost associated with updating ILEC ALI databases.

Programmer hours x cost per hour x providersSee notes 19, 4 and 1. | 6,000 | $628,260 |
| 1. Monthly payments to ILECs for access to specialized routers, dedicated E911 network, and PSAP functions.

Avg. customers per year x ILEC monthly charge x 12 months.See notes 2 and 20. |  | $231,600,000 |
| Total burden for making registered location information available to or through the ALI databases. | **6000** | **$239,518,260** |
| **C. Customer Notification** |  |  |
| 1. Verifying that new customers have received notification of the E911 capabilities of the provider: hours and costs included with A-3.
2. Customer time spent reading/listening to E911 limitations and confirming that they have been notified: Covered in A-4.
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|  | **Estimated Burden Hours to the Public** | **Estimated Dollar Burden to the Public** |
| **D. Record of customer notification** |  |  |
| 1. Customer notification may be provided in conjunction with the provider’s subscription process, which may be conducted electronically. Paper records no longer required.
 |  |  |
| 1. Computer records associated with certifications provided over the web. Hours per provider x cost per hour x number of providers. See notes 21, 4 and 1.
 | 144 | $15,078 |
| Total record keeping burden | **144** | **$15,078** |
| **Summary for all cost elements** |  |  |
| **Total Hours and Costs** | **1,477,404** | **$284,439,068** |