



CITY OF KIRKLAND

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT
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MEMORANDUM

DATE: February 28, 2012

To: Planning Commission and Houghton Community Council

FROM: Joan Lieberman-Brill, AICP, Senior Planner
Nancy Cox, AICP, Development Review Manager
Paul Stewart, AICP, Deputy Director
Eric Shields, AICP, Director

SUBJECT: 2012 MISCELLANEOUS ZONING/MUNICIPAL CODE
AMENDMENTS STUDY SESSION (ZON12-00002)

RECOMMENDATION

- Review and direct further changes to draft Part 1 "*Minor Policy*" amendments first introduced and summarized in the memorandum prepared for your previous study session and again summarized in this memorandum.
- Review the proposed Part 2 Kirkland Zoning Code (KZC) and Municipal Code (KMC) amendments ("*Moderate Policy*" changes) and provide direction to staff on the draft list of amendments.

BACKGROUND DISCUSSION

The complete roster of proposed Zoning Code and Municipal Code Amendments is Attachment 1 to this memorandum. The work program is Attachment 2.

The Planning Commission (PC) and Houghton Community Council (HCC) reviewed the "*no policy*" and "*minor policy*" amendments as well as drafts of the "*no policy*" amendments on January 12th (PC) and 23rd (HCC).

Staff presented drafts of the "*minor*" amendments (Part 1) at the February 27 HCC meeting and will present them at the March 8 PC meeting to determine if additional information and staff response is needed for review at the next

study sessions in April. During this current round of study sessions, staff also introduced the “*moderate*” zoning code amendments (Part 2).

The final study sessions are tentatively scheduled for April 23 (HCC) and 26 (PC) to go over the draft “*moderate policy*” amendments and address any remaining changes to the rest of them. A joint public hearing is tentatively set for May 24 (PC and HCC). City Council review and adoption is scheduled for June 19. The HCC is scheduled to take final action on July 23.

AMENDMENTS GENERAL

The sections below provide a breakdown of the proposed KZC/KMC amendments, grouped by their policy level implications: “*Minor Policy*” and “*Moderate Policy*” changes. (Since the “No Policy” draft amendments were prepared for your last meetings, they are not included in this memorandum.)

Drafts of the *Minor Policy* amendments are attached for your review and comment, based upon feedback provided at your last study sessions. Background for each of the amendments is provided in the section entitled MINOR POLICY CHANGES. Requested changes will be incorporated into revised drafts prepared for the next study sessions.

Proposed *Moderate Policy* changes are introduced for the first time in the section below entitled MODERATE POLICY CHANGES. Staff will be available to answer questions. Based on the PC and HCC direction, staff will bring back draft *Moderate Policy* amendments at subsequent meetings.

Please Note: Topics with an asterisk (*) denote items that are within Houghton’s jurisdiction.

NO POLICY CHANGES

Refer to the Part I [memorandum](#) from the January 12 and 23rd study sessions for “*No Policy*” summary and draft amendments for each. No changes to these amendments were requested by either advisory body at the previous study session.

One additional *No Policy* amendment has been added to the roster that was not considered in January. A summary is provided below, and the draft amendment is provided in this memorandum (Attachment 16).

Totem Lake 9B KZC Chapter 55 Section 55.64.010 (amendment added on 2/28/12)

Purpose: Add the density limitation of 5,000 square feet per dwelling unit for this zone, which was inadvertently missed with the adoption of Ordinance 4158 in 2008. This ordinance implemented the Gordon Hart private amendment request (PAR) through codification of the TL 9A and 9B zones and established a 5,000 sq. ft. minimum lot size for the TL 9B zone. While staff correctly identified the minimum lot size as 5,000 square feet, staff inadvertently omitted the density limitation in the special regulation. This minimum lot size is equivalent to the density being codified. In all multifamily zones, a special regulation expresses density as minimum lot area per dwelling unit and this amendment does just that.

Staff Recommendation: Staff recommends that the following special regulation be added to the TL 9B special regulations: "*The minimum amount of lot area per dwelling unit is 5,000 sq. ft.*" (Attachment 16)

MINOR POLICY CHANGES

The proposed amendments do not clarify existing regulations, but instead change them. However, they are generally not considered significant policy issues. Amendments have been drafted for all of these and are attached. At their February 27 meeting, the HCC did not request any changes to the proposed amendments.

Totem Lake 10E KZC Chapter 55 Section 55.93.110

Purpose: Correct the sign category for "Vehicle or Boat Repair, Services, Washing or Rental".

Staff Recommendation: Replace the current sign category A, (which is used for housing developments and single family homes), with category E, for non residential uses. Sign category E allows wall-mounted, marquee, pedestal, or monument signs. (Attachment 3)

***Waterfront Districts (WD) I, II & III KZC Sections 30.10,20 & 30**

Purpose: This amendment would add a new general regulation to all three Waterfront District zones to address required rear yard setbacks.

Background: There are situations when an upland lot that is within a WD zone does not abut the shoreline, and therefore may have a rear yard rather than a shoreline setback yard. However, no rear yard setback is specified in

the use zone charts for WD I and III. A special regulation addresses rear yard setbacks in WD II, but only for detached dwelling units.

To remedy this, a new general regulation is proposed that would require the same rear yard dimension for the use as is used in the comparable zoning classification. A general regulation rather than a special regulation is proposed, since it would apply to all but the water dependent uses allowed in the WD zones.

In the WD II zone, located in the Market Neighborhood, the new general regulation would replace a special regulation that currently pertains only to detached dwelling units. The new proposed general regulation would require that the required rear yard is the same as for the uses in the RS zone. For example, "detached dwelling units" would have a required rear yard of 10 feet while "public utilities" would have a required 20 foot rear yard setback.

In the medium density residential WD I and III zones, from approximately Marina Park south, required rear yards would be the same as for the RM zone. Again, "detached dwelling units," and "detached, attached or stacked dwelling units" would have a 10 foot rear yard setback while "public utilities" would have a 20 foot yard. There are only 6 parcels in Houghton's WD Zones that do not adjoin the shoreline. 4611, 4617, 4625, 4813, and 6207 Lake Washington Boulevard and parcel in PLA 15 A.

Staff Recommendation: Staff recommends the attached general regulation for each of the WD zones to address rear yard setbacks for properties that do not abut the shoreline. The new general regulation in WD II would replace Special Regulation 4 in KZC Section 30.25.010, pertaining only to detached dwelling units. See Attachments 4-7 for the draft amendments.

***Required Yards related to a 2nd Story above Garage Rear Yard Setback Encroachment - KZC Chapter 115 Section 115.115.3.o**

Purpose: This code amendment would clarify whether or not a second story above a detached garage, which utilizes an alley for primary vehicular access, may encroach into the rear yard setback.

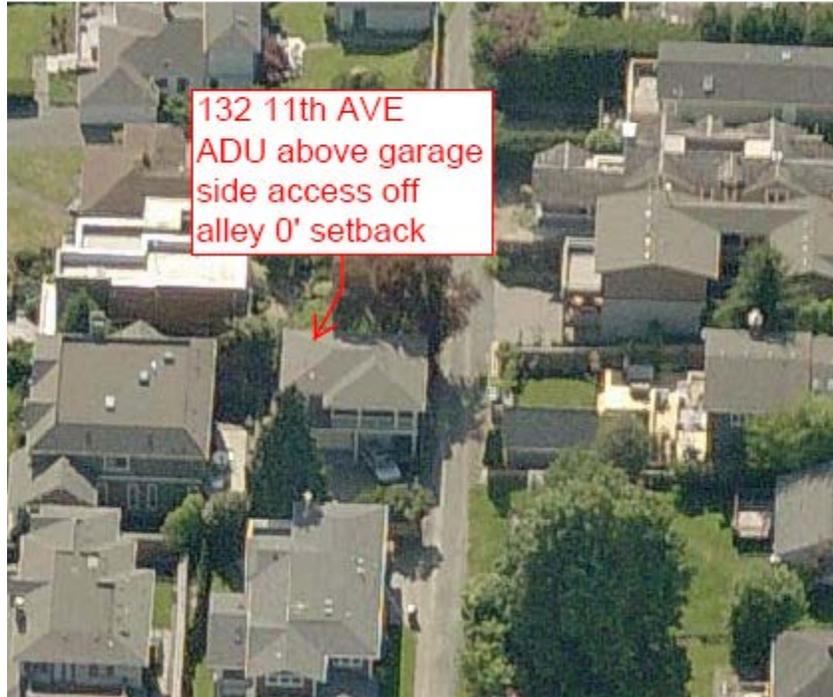
Background: The Code is silent on this, but the past practice has been to allow the second story in the setback. The purpose of allowing garages to encroach into the required 10 foot rear yard alley setback is to incentivize taking access off of alleys. That intent is further reinforced by explicitly limiting detached garages to one story when located 5 feet from an

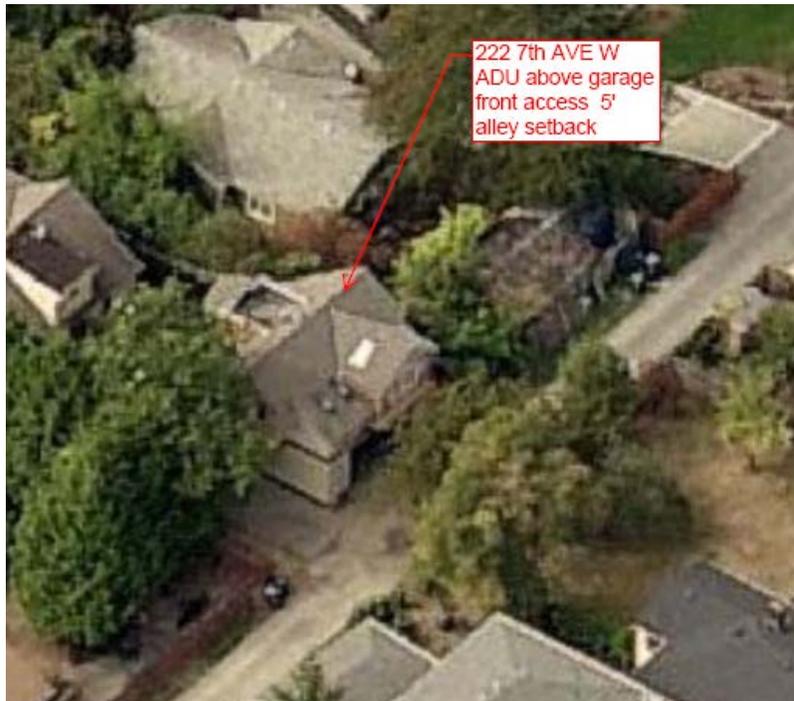
unopened alley. Conversely, height is not addressed, let alone limited; when the alley is open, to encourage the preferred alley access.

Examples of existing two story garages with access off of an open alley are provided to consider impacts. ADU's and offices are typical uses in the second story space. The first two examples have zero setbacks from the alley, because the garages access from the side: 908 5th Street and 132 11th Ave. The third and fourth examples have five foot alley setbacks because the garages access directly off of the alley: 605 1st Street and 222 7th Avenue



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Two options are suggested:

1. Allow the same setback for the 2nd story as is allowed for the garage; or
2. Limit garages to one story when located within 5 feet of an open alley. This would be the same 5 foot encroachment into the required 10 foot rear yard as allowed for two story garages adjoining unopened alleys.

Staff recommendation: Amend Section 115.115.3.o to codify current practice, which is to allow the detached garage to include a second story in the required rear yard. As is now the case, the second story setback encroachment would be dependent upon whether the garage access is from the side or directly off the open alley. See Attachment 8 for the draft amendment.

***Front Yard Setback Flexibility in Low Density Residential Zones
KZC Chapters 5, 15, 17 and 18**

Purpose: This code amendment would give some setback relief when a parcel has two opposite front yards.

Background: There are a limited number of parcels with this configuration. As the Code now reads these parcels are required to provide two 20 foot front yard setbacks. It could be argued that this is an onerous requirement. King County requires two 10 foot setbacks in this situation. The example below is located in the annexation area.



An amendment could either:

1. Parallel the corner rule in RS/RSX zones that allows corner properties to choose which will be the front, and allows the other to be reduced, or
2. Prescribe the 20 foot front yard on the side of the lot to which the front façade of the house faces, with the opposite side of the lot regulated as a 10 foot rear yard.

Staff Recommendation: Staff recommends that the side of the lot to which the front facade faces be designated as the 20 foot front yard and the opposite be regulated as a rear yard. Amend Chapters 5, 15, 17, and 18 Special Regulations to implement this. See Attachments 9-12 for the draft amendments.

MODERATE POLICY CHANGES

These are considered more substantive changes to existing regulations. The actual draft amendments will be prepared for your review at the study meetings in April.

Totem Lake 9B KZC Chapter 55 Section 55.64.010

Purpose: Add the density limitation of 5,000 square feet per dwelling unit for this zone, which was inadvertently missed with the adoption of Ordinance 4158 in 2008. This ordinance implemented the Gordon Hart private amendment request through codification of the TL 9A and 9B zones and established a 5,000 sq. ft. minimum lot size for the TL 9B zone. This minimum lot size is equivalent to the density being codified. In all multifamily zones, a special regulation expresses density as minimum lot area per dwelling unit and this amendment does just that.

Floor Area Ratio (FAR) Exemptions Chapter 115 Section 115.42.

Purpose: This amendment would clarify whether stairwells should be exempt from FAR calculations, and if so, to what extent. Codifying a standard will help ensure that applicants understand how the City will review their permit application. Another option presented would consider approaches to simplify FAR to cut down on staff review time.

Background:

Current Method of Calculating FAR Exemptions:

The Kirkland Zoning Code does not specifically address how to calculate FAR for interior stairs. In practice, planners have been partially exempting stairwells from FAR calculations for similar reasons as why vaulted areas are exempted.

This amendment seeks to address concerns expressed by the development community that FAR exemptions are confusing and hard to interpret. The changes are also meant to address planners' frustration about administering the exemptions in a consistent and defensible way. Finally, the City Council has expressed an interest in simplifying permit review, while maintaining the quality of the built environment, to reduce barriers to development in the City.

KZC section 5.325.5 defines FAR as: "the maximum permitted gross floor area allowed, expressed as a percentage of the lot size (gross floor area/lot size = FAR)..."

KZC section 5.340 defines Gross Floor Area as: "the total sq. footage of all floors in a structure as measured from either the interior surface of each exterior wall of a structure or, if the structure does not have walls, from each outer edge of the roof. Exterior areas may constitute gross floor area."

KZC section 115.42 lists the partial exemption for vaulted space as follows: Floor area with a ceiling height greater than 16 feet shall be calculated as follows:

- a. The first 100 square feet of such floor area, in aggregate, shall be calculated only once toward allowable F.A.R.;
- b. Floor area in excess of the first 100 square feet shall be calculated at twice the actual floor area toward allowable F.A.R.

Our current regulations calculate FAR for single family dwelling units in low density zones based on those definitions. Even though vaulted areas, attics, ADU's and daylight basements are technically interior area that contribute to the volume of the building, the Zoning Code currently exempts all or a portion of these areas. These elements are exempted (either partially or entirely), for different reasons: either because the area is unusable interior space, the space does not add to the perception of bulk, or to incentivize ADU's.

The partial vaulted space exemption is based on the idea that even though these have interior space, there is only a "floor" on one level and the upper level volume is "air space".

Currently, staff calculates stairwell exemptions based on the stairway footprint for one floor only. Any storage areas over 5 feet high beneath the stairs are not exempt, because they are considered useable space. A three story home is treated the same as a two story home.

Other Ways to Calculate FAR

At its January 23 study, a Houghton Community Council member requested that staff research other definitions and methods to calculate FAR and exemptions, by looking at how various building codes calculate gross floor area (GFA). The Zoning Code definition of GFA is consistent with how the International Building Code, which the City uses, measures gross floor area. They both measure area within the inside perimeter of exterior walls. Unlike

the KZC, The IBC does not exempt stairways, vaulted space (e.g. foyers), or covered decks or porches in the calculation. The Building Official explained that this definition is used for calculating occupancy, the fire area for sprinklers and energy code compliance.

The IBC section 1002 defines GFA as: "FLOOR AREA, GROSS. The floor area within the inside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts."

Although BOMA (Building Owners and Managers Association) has a standard method of measurement, it is different than the IBC, and their focus is on commercial buildings. The BOCA (Building Officials and Code Administrators) Code is used in other parts of the country but, like the Uniform Building Code, it is going to be phased out.

Of all our neighboring cities, only Bellevue uses FAR to limit overall mass of single family, and they measure GFA from interior wall to interior wall as we do. They do not exempt anything but parking from that calculation for single family. None of the rest of our neighboring municipalities use FAR for single family development. Instead, they use the building envelope to control the size of the home.

Stairwell Exemption Options

Staff has identified the following options for calculating the stairwell FAR exemption:

1. Codify Existing Practice: Currently we allow a partial exemption of a stair well from the calculation of FAR. This recognizes that at least a portion of the space is usable since a person actually walks on a stairway within a stairwell, and therefore that area should be included in the calculation of FAR.
2. No exemption for stairwells. Since the stairwell is interior volume that increases the exterior perception of building mass and they are by definition gross floor area, do not exempt them.

3. Simplify the existing method of calculating stairwell exemptions. Rather than measuring stairwell exemptions on a case by case basis, establish a maximum square foot exemption, based upon the minimum requirements for stairways in the IBC. This would treat stairs similar to vaulted space and provide a standardized deduction.

FAR Exemption Options

In the process of reviewing FAR for stairs, staff has identified the following options for calculating FAR in general:

1. Retain the existing method of calculating FAR exemptions: The square footage of each exempt element is subtracted from the Gross Floor Area (GFA) of the dwelling unit. With this option, staff would still recommend codifying stairwell exemptions through one of the methods discussed above.
2. Eliminate stairwell and vaulted area FAR exemptions. This would simplify FAR calculations and provide a more true measurement of building volume/mass. Using this method would reduce significant staff time now spent calculating vaulted areas and stairwells. Attic and basement GFA partial exemptions that arguably do not add to the perception of mass would remain. ADU partial exemptions would remain as an incentive to provide alternative housing.
3. Increase the FAR slightly for each zone. This option would be a variation of option 2. Option 2 results in a slight loss of FAR overall, since exemptions of certain spaces are eliminated. To compensate for this loss, this option would slightly increase the allowed floor area. Here's how it would work: Set a value for the stairwell exemption. That value, along with the permitted 100 sq. ft. vaulted area exemption, would then be added to all existing FAR's in each low density zone. Instead of subtracting the exempted areas from GFA, the FAR for each zone would increase to account for a prescribed square footage for both vaulted areas and stairwells. The revised FAR would be close to the same GFA that the existing method allows.

The case by case calculation for the partial attic, daylight basement and ADU exemptions would remain.

Staff Recommendation:

Staff recommends enacting one of the above options to clarify the treatment of stairwells in calculating FAR. Staff prefers options 2 or 3 due to their simplicity and time savings for both applicants and staff.

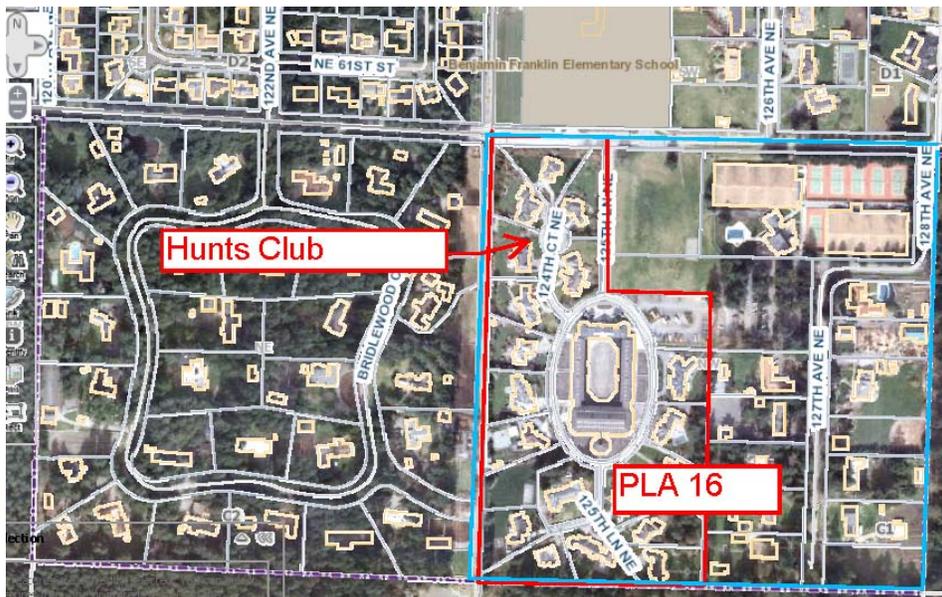
Between now and the next study session, direct staff to draft an amendment to Section 115.42 to codify the FAR calculation method for stairwells and vaulted areas and calculation of FAR exemptions in general.

***PLA 16 Equestrian Regulations Chapter 160 Section 160.182.010 and Miscellaneous Regulations Animals in Residential Zones, Large Domestic Animals, Horses Chapter 115 Section 115.20.4**

Purpose: The amendments are proposed to eliminate redundancy between existing PLA 16 horse regulations, which apply only in PLA 16, and Miscellaneous Large Domestic Animals regulations regarding horses, which apply citywide. Too, the amendments would clarify which equestrian requirements apply specifically to the Kirkland Hunt Club, an approved master plan development in PLA 16.

Background: The confusion in part stems from the fact that the keeping of horses is addressed in two Chapters of the Code. Miscellaneous Section 115.20.4 Animals in Residential Zones, regulates Large Domestic Animals, which includes horses. KZC 60 PLA 16, which includes the Kirkland Hunt Club, also regulates horses because the approved master plan adopted specific equestrian standards. Both Chapters must be used to administer the rules regarding horses because standards addressing size, setback and sanitation of the paddock area for all areas of the City, including PLA 16, are addressed in KZC 115, while standards only pertaining to the master plan are addressed in PLA 16.

Below is a map of PLA 16 outlined in blue, and the Hunt Club outlined in red.



The Hunt Club master plan requirements deviate in the following ways from the usual PLA 16 requirements:

	PLA 16 Kirkland Hunt Club Master Plan	Remainder of PLA 16 and other areas in the City
Lot area	26,000 sq. ft.	35,000 sq. ft.
Number of horses	2 maximum	Depends on sq. footage above 35,000 sq. ft.
Public equestrian trail	Required for detached dwelling units	Not required

Staff Recommendation: Eliminate redundancy between both chapters. Within PLA 16, clarify which special regulations apply to lots within the Master Plan development. Reformat KZC 115.20.4 chart. The following proposed changes have been identified so far:

- Eliminate PLA 16 General Regulation #3. This regulation requires an improved equestrian trail in the non-master plan area for limited land uses, and excludes residential development from this requirement. Since residential use is the primary use in this non master plan area, and the land uses that require the equestrian trail do not exist, this regulation does not make sense. Special Regulation #7. e., pertaining to the Kirkland Hunt Club Master Plan, requires a trail for detached dwelling units. Because access is available down 127th Avenue NE to the State

Park and the north side of NE 60th Street will be improved with a pedestrian/equestrian trail as part of the Tennis Club expansion, it doesn't make sense for it to be required in the remainder of the non-master plan area in PLA 16.

- Relocate PLA 16 Special Regulation #4. This change would correct the use zone chart because the special regulation applies only to the master plan. Currently, this special regulation incorrectly limits the number of horses to two throughout PLA 16, which contradicts KZC 115.20 which applies this limit only to the master plan area. Lots in the non master plan portion of PLA 16 may have more horses if they exceed 35,000 square feet. This amendment would relocate and renumber the special regulation to #5.f.
- Eliminate PLA 16 Special Regulation #6, regarding manure pile location. It is proposed to be eliminated since it is already covered in Section 115.20.4 use zone chart Special Regulation #4 for Large Domestic Animals.
- Revise and replace PLA 16 Special Regulation #7 and label it #5, so that it explicitly states up front that the reduced lot size is only allowed if a master plan is approved. Also, a new standard, special regulation 5g would explicitly state that no review process is required for the keeping of horses with an approved master plan. (These standards were approved with the Hunt Club Master Plan.)
- Reformat and simplify the chart in the Miscellaneous Chapter addressing Large Domestic Animals, which includes horses. It is very hard to follow in its current form.

*** Miscellaneous Regulations Animals in Residential Zones, Small Domestic Animals, Chickens Chapter 115 Section 115.20.4**

Purpose: The amendments are proposed to expand the residential zones in which chickens are allowed, determine the maximum number of chickens, and the standards for their keeping (setbacks, prohibition on roosters, etc).

Background: Last year the Planning Commission directed staff to amend the rules regarding backyard chickens after they received a letter expressing their support for doing so. The letter is Attachment 13 to the memorandum.

KZC Section 115.20.4 establishes regulations that govern the keeping of animals in any zone where a dwelling unit is permitted. Chickens and other fowl are regulated as small domestic animals. The regulations address:

- The maximum number of fowl and the circumstances under which this number may be reduced based upon proximity to other dwelling units, compatibility with surrounding uses, lot size and isolation, and noise impacts.
- The minimum lot size,
- The minimum setbacks for pens,
- Structure/pen cleanliness,
- The minimum lot size for keeping rosters.

The City adopted the preexisting County regulations with annexation. In the annexation RSA zones (JFK area), there is no minimum lot size for chickens, but if the lot is less than 35,000 sq. ft. roosters are prohibited and a maximum of 3 chickens are allowed.

In preannexation Kirkland, in order to keep chickens, a lot must be at least 35,000 square feet and there is a limit of 20 chickens and 1 per each additional 500 sq. ft. Roosters are allowed.

As a result of the backyard food movement, there is increased interest in allowing chickens on residential lots with fewer restrictions. The cities of Seattle and Redmond have adopted regulations to address the keeping of chickens in residential areas. Along with reviewing those existing programs, staff is working with Seattle Tilth, and interested citizens to develop the draft regulations.

The State Health Department and Department of Agriculture regulate the sale of eggs and have determined that residentially raised chickens are exempt from their regulations. Municipalities are silent regarding the sale of eggs, and if there is an issue it is investigated as a complaint.

The following links contain information pertaining to chickens:

<http://www.ci.redmond.wa.us/Residents/ChickenHusbandry/>

<http://seattletilth.org/learn/resources-1/city-chickens>

<http://www.shorelinewa.gov/index.aspx?page=271> Backyard Chickens in Shoreline PDF

At the meeting, consider the following topics:

- Should there be a minimum lot size for keeping chickens?(Currently none in JFK, and 35,000 sq. ft. in the rest of Kirkland)
- Should lot size determine the number of chickens allowed? (Currently in the annexed JFK neighborhoods there is no limit in any zone, in the rest of Kirkland there is a limit of 20 and 1 per each additional 500 sq. ft on lots of at least 35,000 sq. ft.)
- Should roosters be allowed? (Currently they are only allowed in entire City on lots greater than 35,000 sq. ft.)
- Should there be an approval process? (Currently none)

Staff Recommendation: Amend Section 115.20.4 to provide the same rules throughout Kirkland allowing chickens on various sized residential lots. Standards would be prepared to address such issues as number of chickens, the location of pens and setbacks, and the keeping of roosters. Generally a formal approval process should not be required.

***Time Limits to Complete Construction of Projects Approved by the Design Review Board Chapter 142 Section 115.20.4**

Purpose: Provide authority for the Design Review Board (DRB) to extend the duration of time in which an applicant has to complete construction, prior to DRB approval lapsing.

Background: Section 142.55.1 establishes a one year period after a project has been approved by the DRB for an applicant to submit a complete building permit application and thereby vest the DRB decision. In addition, construction of the development must be completed within three years of the decision. The DRB is given the authority to establish a longer period of time (unspecified) to submit the building permit application, but is not given the authority to extend the time to complete construction. Section 142.55.2 allows the Planning Official to approve an additional one-time one year extension for both the application submittal and development completion.

For larger developments, particularly those that require phasing, three/ four years may be insufficient time to complete construction.

Staff Recommendation: Amend Section 142.55.1 to allow the DRB to extend the time to complete construction up to ten years.

***Application of Small Lot and Historic Preservation Subdivision Regulations throughout the City Title 22- Subdivisions KMC**

Purpose: Apply small lot and historic residence regulations city-wide. The small lot regulations now apply only in the Norkirk, Market, Lakeview and Central Houghton Neighborhoods. The historic regulations now apply only in the Norkirk and Market Neighborhoods.

Background: Subdivision Ordinance section 22.08.042 allows up to half of the lots in a subdivision to be less than the normal minimum lot size if the houses on the lots are limited to a smaller than usual FAR (floor area ratio). For example, in the RS 7.2 zone, the minimum lot size is 7200 square feet and the floor area of houses is limited to 50% of the lot size. However, under section 22.08.042, a subdivision may have up to half the lots as small as 5000 square feet if the houses on the smaller lots are limited to no more than 30% of the lot size - or 35% if the house has a sloped roof.

Subdivision Ordinance section 22.28.048 allows up to two lots in a subdivision to be less than the minimum lot area required in that zone, (allowing the same reduced lot size for both lots) if a designated historic home is preserved on one of the lots. The FAR on the lot without the historic home would remain that required for the underlying zone.

The above regulations were first established when the Market and Norkirk neighborhood plans were updated in 2006. Small lot single family subdivisions were extended to the Central Houghton and Lakeview Neighborhoods in 2011, during the plan update process for those neighborhoods. Given the uncertain timing of future neighborhood plan updates, application of these regulations to other neighborhoods through neighborhood plan updates could take many years.

Staff Recommendation: Revise the small lot and historic preservation subdivision regulations to apply city-wide.

***Extension of Land Use Permit Approvals during the Economic Recession – Various code sections in KZC and KMC**

Purpose: To either codify or discontinue the interim regulations that have been in place since 2009 that allow the City to approve requests for land use permit extensions.

Background: The interim regulations extend: 1) the recording period for plats, and 2) the time to begin construction or submit a building permit or to complete construction for zoning permits. The regulations have been

renewed four times. At the last renewal the City Council directed staff to prepare options for review by the City Council's Economic Development Committee (EDC) to help determine if the City should continue renewing or make permanent code changes. The goal is to include code changes, if any, in this code amendment package.

Staff Recommendation: Staff will be presenting options to the EDC in early March and will report back with a recommended direction. Options staff are formulating include: 1) codifying the interim regulations and making the extended timeframes permanent; 2) codifying the interim regulations with a sunset provision that would allow the majority of land use permits that have been impacted during the recession to get an extension; and 3) discontinuing the interim regulations and future land use permit extensions when the current ordinance expires. Any input from the PC and HCC about how to handle this would be welcome.

***Non-Conforming Density- Special Provisions for Continued Uses – Limitations on Maintaining, Repairing and Remodeling Structures with Nonconforming Density- Chapter 162 Section 162.60**

Purpose: Provide more flexibility to repair, maintain and remodel structures with nonconforming density without having to bring the density into conformance.

Background: During the recent preparation of the Lakeview and Central Houghton Neighborhood plans, concern was raised about the extent to which current regulations limit maintenance, repair and remodeling unless density is brought into conformance. Condominium owners noted that there are implications to reducing density when the units within a building are under separate ownership. These owners asked that the zoning code restrictions be eased.

Rather than establish a policy or regulation on this issue that would be applicable only to the two neighborhoods, the Planning Commission and Houghton Community Council agreed to review the regulations and consider revisions that would apply city-wide.

Section 162.60 regulates nonconforming density on properties that were previously down-zoned to conform to the Comprehensive Plan. Key provisions of the section are:

- Ordinary repairs and maintenance may occur without restriction;

- Remodeling may occur provided that the value of improvements within any 24 month period may not exceed 50% of the value of the structure.
- Remodeling must maintain a density of at least 75% of the original density and the exterior dimensions of the structure may not be increased. (This clause was added in the late 1990's to encourage the retention of smaller and presumably more affordable units.)
- Structures damaged by fire or other casualties are exempt from the regulations provided that the rebuilt structures do not exceed the number of dwelling units, gross floor area and major dimensions prior to the casualty.

Concerns raised about existing regulations were that there was no definition of repairs or maintenance (leaving too much room for staff interpretation) and that the limitation on the value of remodeling is too restrictive. In considering how to revise this section, two policy questions should be considered:

- What is the public interest in requiring the density of existing structures to be brought into conformance? Typically, there is an expectation that nonconformances eventually be eliminated. Limitations on improvements to nonconforming structures are established to limit the life span of the nonconformance and encourage eventual replacement with a conforming structure. The greater the public interest in correcting the nonconformance, the stricter the limitation on development activity should be.

With regard to nonconforming density, impacts primarily have to do with the activities associated with the number of units – for example traffic. Reducing density would reduce those impacts. However, there is also a broader public impact that would be created by a reduction in density. Under the Growth Management Act, the City is expected to plan for growth and accommodate increased density. Requiring existing nonconforming density to be reduced results in the need to build even more units elsewhere in order to meet growth targets.

In addition, as noted by the condominium owners during the update of the Central Houghton and Lakeview Neighborhood Plans, requiring the density of existing condominium developments to be reduced creates a unique impact to property owners due to the divided ownership within a condominium building. If density is reduced, some of the existing owners

would be left without units.

- Should complete redevelopment be allowed? Normally, complete redevelopment would be required to comply with current density restrictions. However, redevelopment could be allowed without a loss of units if the development provides specified public benefits. For example, rebuilding could be conditioned on the provision of more affordable housing than would otherwise be required. Another suggestion is to allow rebuilding if high standards of energy efficiency or storm water management are met (i.e. "green" building)

Staff Recommendation: Liberalize the ability to undertake remodeling without bringing density into conformance. One idea would be to remove the distinction between repair, maintenance and remodeling and increase the threshold for the value of work allowed to occur. Consider allowing redevelopment for projects with additional affordable housing or which meet high standards of green building.

New Hazardous Liquid Pipeline Zoning Code Amendments addressing the Olympic Pipeline now within Kirkland's jurisdiction.

Purpose: Draft new KZC regulations addressing hazardous liquid pipelines.

Background: As a result of annexation a portion of the Olympic Gas Pipeline is now located within Kirkland's jurisdiction. Both King County and Redmond already have regulations regarding land use planning near these facilities, but Kirkland does not. The Municipal Research Service Center provides information about options for land use near transition pipelines at their website titled "[Planning Near Pipelines](#)".

The pipeline consists of over 400 miles of transmission pipelines extending from refineries in Blaine, Washington to Portland. These pipelines carry refined liquid petroleum products: diesel, aviation fuel (basically a form of Kerosene) and gasoline. Olympics' facilities are largely underground, (except for shut off valves) typically buried approximately three feet deep, although depths vary widely and should never be assumed. The pipes are welded carbon steel and range from 6-inch to 20-inches in diameter. The corridor is typically in a 50 foot private easement but in parts is as narrow as 10 feet. The pipes are parallel and generally spaced 15 feet apart.

Two of Olympics' main lines traverse the Kingsgate area of Kirkland, a 16-inch diameter and a 20-inch diameter. The 16" pipeline maximum operation pressure is 1253 psi (pounds per square inch), and the 20" pipeline is 926

psi, although the lines are more typically pressured at approximately 750 psi on the 16-inch line and 500 psi on the 20-inch line through Kirkland. The closest automated check valves are located in Woodinville just south of 522, and in Redmond south of Redmond Way.

The City has secured a grant to undertake research and drafting necessary to produce regulations governing land use decisions near transmission pipelines. Through an agreement between the Pipeline Safety Trust and the Association of Washington Cities, the Trust has agreed to provide technical assistance to local governments undertaking adoption of pipeline safety ordinances, and pass through \$3,000 of the US Dept of Transportation, Pipeline and Hazardous Material Safety Administration (PHMSA) grant funding to us help defray the cost of doing this work.

While land use regulations are one part of the safety strategy, prevention is the key. We will coordinate Planning efforts as necessary, with staff from various City departments that have a role in pipeline safety. For example, the Fire and Building Department are first responders and along with Redmond, have an incident response plan for dealing with the kind of accidents that could happen.

But the most effective way to prevent a pipeline accident is by not disturbing the pipeline in the first place – so getting the word out to property owners not to dig in the area close to the corridor is accomplished through the statewide program Utility Locate Program "[Call Before You Dig](#)". The Olympic Pipeline Company maintains line markers along the pipeline corridor. The When a grading or right-of-way permit is required, the City is required to notify all excavators working within 100 feet of the utility's facilities of their responsibility to notify the utility at least 48 hours prior to the work. The City is also required to keep the utility informed about work it undertakes in the franchise area on city owned property. The utility comes out and locates prior to any party commencing development.

Attachment 14 is a map showing the pipeline location and surrounding land use. Potential redevelopment and new development within about 150 feet of both sides of the corridor could be impacted by the pipeline. King County and Redmond regulations apply to land use development within a range of 100 to 150 feet from the pipeline, respectively. Among other things they address high consequence land uses (schools, hospitals emergency services...), mitigation for expansions of existing uses otherwise required to setback from the corridor, and mitigation methods for various new construction. We will draw from the Code language already in place in the County and other cities in the region that already have regulations in place.

Staff Recommendation: Draft a Code amendment to consider at the April study sessions.

Delete Heron Habitat Protection Area in Finn Hill Annexation Area – Chapter 90 – Section 90.127

Purpose: Delete Section 90.127 and Plate 39 which refer to Heron Habitat Protection Area regulations and map that was carried over from the County regulations upon annexation. The deletion of Section 90.127 and Plate 39 were inadvertently omitted from Ordinance 4303 dated June 7, 2011, to implement clarification of the City's Shoreline Master Program.

Background: Both the City and King County agree that there is no evidence of heron habitat, which would have been the basis for the County's regulation. The City's s Shoreline Inventory Analysis Report showed no herons in the Finn Hill annexation area and the County staff concurred since they have no documentation as to why the heron overlay existed. Ordinance 4303 did include an amendment to the RSA use zone charts general regulations that deleted the requirement to meet Section 90.127 and Plate 39. The amendments to delete these additional sections were meant to be done at that time.

Staff Recommendation: Delete Zoning Code Section 90.127 and Plate 39.

***Changes to existing non-conforming Personal Wireless Service Facilities (PWSF) - KZC Chapter 117, various sections**

Purpose: To determine whether or not non-conforming PWSF facilities in the new neighborhoods and/or all of Kirkland should be approved for upgrades.

Background: There are numerous PWSF facilities in Kirkland that are non-conforming. Following are broad categories:

- Utility poles with antenna located too high on the poles (mostly in the new neighborhoods).
- Rooftop antenna that extend above the roofline.
- Monopoles with antenna that are higher or have antennas that are not flush mounted.

AT&T representatives have indicated that upgrading to the latest wireless broadband technology, the new 4G network, requires several sites to be upgraded. A representative will be at the meeting to explain the business plan they are trying to address.

As technologies change, the City receives requests to replace or add antennae fairly routinely. In fact, the City expects to receive four applications for utility pole upgrades in the new neighborhoods from AT&T. The four sites were permitted in King County. In reviewing the code, staff has determined that the four requests can go ahead – within certain parameters – while code amendments are being considered.

Staff will bring photographs of the four sites to the meeting. Code sections to review are 117.20 Applicability, 117.65.6 Antennas on a Utility Pole, and 117.105.2 Exception – Subsequent Modification. Following are some issues for consideration while considering amendments for future similar requests:

- The existing utility poles are between 60 and 105 feet tall. The code would require the antennas to be lowered to 15 feet above the electrical conductor, leaving excess pole above. The end result would not be much different.
- If the antennas are lowered, more sites will have to be developed to provide the coverage that is needed.

Following are some broader issues for consideration:

- Should amendments addressing non-conforming rooftop antenna or monopoles be considered? Or, is the City comfortable with the existing non-conforming provisions in KZC 117.20?
- Should amendments address all of Kirkland or only the new neighborhoods (Juanita, Finn Hill, Kingsgate)?

Attachments 17-19 were submitted by Ken Lyons with ATT Wireless.

Staff Recommendation: Liberalize the code provisions for non-conforming utility pole antenna replacements in the new neighborhoods. Staff will prepare code language for the next meeting. Discuss liberalizing other code provisions for non-conforming PWSF in the new neighborhoods and/or Kirkland as a whole.

***Application of Electronic Readerboard Sign Regulations at all High Schools and Junior High/Middle Schools in all Single Family Residential RS, RSX, RSA Zones - – Chapters 15, 17, and 18**

Purpose: Determine if electronic readerboard signs may be located at all high schools and junior/middle schools in Kirkland. The regulations already apply at Juanita and Lake Washington High Schools.

Background: Finn Hill Junior High staff, students and parents spoke at the Kirkland City Council meeting on February 7, 2012 to request that an electronic readerboard sign be allowed at the newly renovated school. The School District also presented a letter to the City Council and a representative spoke at the meeting clarifying that the request is intended to apply to all Junior High/Middle Schools and High Schools. According to the School District, "As well as being educational facilities, our junior high schools are heavily used public facilities which regularly communicate community events. An electronic readerboard allows schools to provide information more effectively about events to parents and community members." The district asked the Council to put this issue on the code amendment list and did not request any changes to the standards in the code which are in place for Lake Washington and Juanita High Schools (Attachment 15).

The City Council directed staff to include the request for electronic readerboards at all junior/middle and high schools in the current group of miscellaneous code amendments. One council member requested that the current text be reworded to allow the Planning Director to impose additional conditions on the sign permits.

The current code includes a Special Regulation in the RSX Use Zone Chart for Schools (KZC 17.10.030) to address the electronic readerboards for Lake Washington and Juanita High Schools. If the City decides to allow the signs at all junior/middle schools and high schools, then a similar regulation would be added to the RS and RSA Use Zone Charts.

Staff Recommendation: Discuss and provide direction to staff.

Attachments:

1. Roster of proposed Zoning Code and Municipal Code amendments.
2. Work Program
3. Section 55.93.110 Zone TL 10E use zone chart sign category amendment
4. Section 30.10.3 Zone WDI general regulations rear yard amendment
5. Section 30.20.4 Zone WDII general regulations rear yard amendment
6. Section 30.25.010 Zone WDII use zone chart rear yard amendment
7. Section 30.30.4 Zone WDIII general regulations rear yard amendment

8. Section 115.115.3.o.1.c required yards second story garages amendment
9. Section 15.10.010 Zone RS use zone chart opposite front yards amendment
10. Section 17.10.010 Zone RSX use zone chart opposite front yards amendment
11. Section 18.10.010 Zone RSA use zone chart opposite front yards amendment
12. Section 5.10.326.5 Definitions Front Façade amendment
13. Letter from Kathy Weber and Bill Shain regarding chicken regulations
14. Olympic Pipeline Vicinity Map
15. Letter from Lake Washington School District regarding electronic readerboards
16. Section 55.64.010 Zone TL 9B use zone chart density amendment
17. National Health Statistics Reports – Wireless Substitution
18. Middle Class Tax Relief and Job Creation Act of 2012
19. Letter from Ken Lyons regarding PWSF

Cc: File ZON12-00002

Roster of Miscellaneous Zoning Code and Municipal Code Amendments 2/28/12.
Asterisk notes that these are in the Houghton jurisdiction.

Part 1

NO POLICY CHANGES

These proposed amendments result in no changes to current policy but intend to clarify and fix inconsistencies within the code.

***Code Enforcement KMC Title 1 Section 1.12.050.(d).(6)**

Purpose: Correct the reference regarding who gets the Hearing Examiner notice of decision after the required public hearing addressing a civil violation.

***Trees and Landscaping KZC Chapter 95 Section 95.23.5.e.1**

Purpose: Correct the reference in subsection 5.e, which refers to the Tree Removal Allowances not associated with development activity, when seeking to cut trees on private property.

Totem Lake 9B KZC Chapter 55 Section 55.64.010 (amendment added on 2/28/12)

Purpose: Add the density limitation of 5,000 square feet per dwelling unit for this zone, which was inadvertently missed with the adoption of Ordinance 4158 in 2008. This ordinance implemented the Gordon Hart private amendment request through codification of the TL 9A and 9B zones and established a 5,000 sq. ft. minimum lot size for the TL 9B zone. This minimum lot size is equivalent to the density being codified. In all multifamily zones, a special regulation expresses density as minimum lot area per dwelling unit and this amendment does just that.

***Process I Chapter 145 Section 145.22.2.a.**

Purpose: This amendment clarifies that state and federal agencies with jurisdiction must receive a Notice of Application for Process I development proposals.

MINOR POLICY CHANGES

The proposed amendments do not clarify existing regulations, but instead change them. However, they are generally not considered significant policy issues.

Totem Lake 10E KZC Chapter 55 Section 55.93.110

Purpose: Correct the sign category for "Vehicle or Boat Repair, Services, Washing or Rental".

***Waterfront Districts (WD) I, II and III KZC Chapter 30 Sections 30.10,20 and 30.**

Purpose: This amendment would add a new general regulation to all three Waterfront District zones to address required rear yard setbacks.

***Required Yards related to a 2nd Story above Garage Rear Yard Setback Encroachment - KZC Chapter 115 Section 115.115.3.o**

Purpose: This code amendment would clarify whether or not a second story above a detached garage, which utilizes an alley for primary vehicular access, may encroach into the rear yard setback.

***Front Yard Setback Flexibility in Low Density Residential Zones KZC Chapters 15, 17 and 18**

Purpose: This code amendment would give some setback relief when a parcel has two opposite front yard setbacks.

Part 2 - MODERATE POLICY CHANGES

These are considered more substantive changes to existing regulations.

Floor Area Ratio (FAR) Exemptions Chapter 115 Section 115.42

Purpose: This amendment would clarify whether stairwells should be exempt from FAR calculations, and if so, to what extent. It would also consider options to simplify FAR and cut down on review time.

***PLA 16 Equestrian Regulations Chapter 160 Section 160.182.010 and Miscellaneous Regulations Animals in Residential Zones, Large Domestic Animals, Horses Chapter 115 Section 115.20.4**

Purpose: The amendments are proposed to eliminate redundancy between existing PLA 16 horse regulations, which apply only there, and Miscellaneous Large Domestic Animals regulations regarding horses, which apply citywide. Too, the amendments would clarify which horse keeping requirements apply specifically to the Kirkland Hunts Club, an approved master plan development in PLA 16.

*** Miscellaneous Regulations Animals in Residential Zones, Small Domestic Animals, Chickens Chapter 115 Section 115.20.4**

Purpose: The amendments are proposed to expand the residential zones in which chickens are allowed, determine the maximum number of chickens, and standards for their keeping (setbacks, prohibition on roosters, etc).

***Time Limits to Complete Construction of Projects Approved by the Design Review Board Chapter 142 Section 115.20.4**

Purpose: Provide authority for the Design Review Board (DRB) to extend the duration of time in which an applicant has to complete construction, prior to DRB approval lapsing.

***Application of Small Lot and Historic Residence Subdivision Regulations throughout the City Title 22- Subdivisions KMC**

Purpose: Apply small lot regulations city-wide. The regulations now apply only in the Norkirk, Market, Lakeview and Central Houghton Neighborhoods.

***Extension of Land Use Permit Approvals during the Economic Recession – Various code sections in KZC and KMC**

Purpose: To either codify or discontinue the interim regulations that have been in place since 2009 that allow the City to approve requests for land use permit extensions. Staff will be presenting options to the City Council's Economic Development Committee (EDC) at the end of February and will report back with a recommended direction.

***Non-Conforming Density- Special Provisions for Continued Uses – Limitations on Maintaining, Repairing and Remodeling Structures with Nonconforming Density- Chapter 162 Section 162.60**

Purpose: Provide more flexibility to repair, maintain and remodel structures with nonconforming density without having to bring the density into conformance.

New Hazardous Liquid Pipeline Zoning Code Amendments addressing the Olympic Pipeline now within Kirkland’s jurisdiction

Purpose: Draft new KZC regulations addressing hazardous liquid pipelines.

Delete Heron Habitat Protection Area in Finn Hill Annexation Area – Chapter 90 – Section 90.127

Purpose: Delete Section 90.127 and Plate 39 which refer to Heron Habitat Protection Area regulations and map that was carried over from the County regulations upon annexation. The deletion of Section 90.127 and Plate 39 were inadvertently omitted from Ordinance 4303 dated June 7, 2011, to implement clarification of the City’s Shoreline Master Program. Both the City and King County agree that there is no evidence of heron habitat, which would have been the basis for the County’s regulation.

***Application of Electronic Readerboard Sign Regulations at all High Schools and Junior High/Middle Schools in all Single Family Residential RS, RSX, RSA Zones - – Chapters 15, 17, and 18**

Purpose: Determine if electronic readerboard signs may be located at all high schools and junior/middle schools in Kirkland. The regulations already apply at Juanita and Lake Washington High Schools.

***Personal Wireless Service Facilities –Flexibility to change non-conforming PWSF - Chapter 117**

Purpose: Determine whether the code should be amended to allow some non-conforming PWSF to be modified.

**Work Program Miscellaneous Zoning Code Amendments
(ZON12-00002)
February 2012**

- Jan 12* **PC study** review “no” and “minor” policy amendments and schedule, and provide direction
- Jan 23* **HCC study** review “no” and “minor” policy amendments and schedule, and provide direction
- Feb 27* **HCC study** review “moderate” policy amendments and follow-up on “minor” policy amendments
- March 8* **PC study** review “moderate” policy amendments and follow-up on “minor” policy amendments
- April 23* **HCC study** draft amendments
- April 26* **PC study** draft amendments
- May 24* **PC/HCC joint public hearing** proposed amendments and recommendation
- June 19* **CC adoption** of ordinance
- July 23* **HCC final action** on ordinance

Section 55.93

Zone
TL 10E

USE ZONE CHART

Section 55.93	USE ↓ REGULATIONS ↑	DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS											
		Required Review Process	Lot Size	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)	
				REQUIRED YARD (See Ch. 115)			Lot Coverage	Height of Structure					
			Front	Side	Rear								
.080	High Technology	D.R., Chapter 142 KZC	None	10'	0'	0'	80%	Where adjoining a low density zone, 50' above average building elevation. Otherwise, 80' above average building elevation.	C See Spec. Reg. 3.	D	If manufacturing, then 1 per each 1,000 sq. ft. of gross floor area. If office, then 1 per 300 sq. ft. of gross floor area. Otherwise, see KZC 105.25.	1. This use may include research and development, testing, assembly, repair or manufacturing or offices that support businesses involved in the pharmaceutical and biotechnology, communications and information technology, electronics and instrumentation, computers and software sectors. 2. May include, as part of this use, accessory retail sales or service occupying not more than 20 percent of the gross floor area. The landscaping and parking requirements for these accessory uses will be the same as for the primary use. 3. Refer to KZC 115.105 for provisions regarding outside use, activity and storage. 4. Any outdoor storage area must be buffered according to Landscape Category A.	
.090	Public Utility			20'	If adjoining a low density zone, then 30' above average building elevation. Otherwise, 35' above average building elevation.	C See Spec. Reg. 1.		B					See KZC 105.25
.100	Government Facility Community Facility												
.110	Vehicle or Boat Repair, Services, Washing or Rental See Spec. Reg. 1.								Where adjoining a low density zone, 30' above average building elevation. Otherwise, 35' above average building elevation.	A E			1. Outdoor vehicle or boat parking or storage areas must be buffered as required for a parking area in KZC 95.45. See KZC 115.105, Outdoor Use, Activity and Storage, for additional regulations.
.120	Restaurant or Tavern See Spec. Reg. 1.					10'					B	E	1 per each 100 sq. ft. of gross floor area.	1. This use is permitted if accessory to a primary use, and: a. It will not exceed 20 percent of the gross floor area of the building; b. It is not located in a separate structure from the primary use; c. The use is integrated into the design of the building; and d. There is no vehicle drive-in or drive-through.

(Revised 4/11)

CHAPTER 30 – WATERFRONT DISTRICT (WD) ZONES

30.05 User Guide.

The charts in KZC [30.15](#) contain the basic zoning regulations that apply in the WD I zones of the City. Use these charts by reading down the left hand column entitled Use. Once you locate the use in which you are interested, read across to find the regulations that apply to that use.

Section 30.10

Zone
WDI

Section 30.10 – GENERAL REGULATIONS

The following regulations apply to all uses in this zone unless otherwise noted:

1. Refer to Chapter [1](#) KZC to determine what other provisions of this code may apply to the subject property.
2. Developments creating four or more new dwelling units shall provide at least 10 percent of the units as affordable housing units as defined in Chapter [5](#) KZC. Two additional units may be constructed for each affordable housing unit provided. In such cases, the minimum lot size listed in the Use Regulations shall be used to establish the base number of units allowed on the site, but shall not limit the size of individual lots. See Chapter [112](#) KZC for additional affordable housing incentives and requirements.
3. [The required rear yard for each use shall be the same as the required rear yard for the same use in the RM zone, unless otherwise specified in section 30.15.020.5. \(does not apply to Public Access Pier, Boardwalk or Public Access Facility; Piers, Docks, Boat Lifts and Canopies Serving Detached Dwelling Unit; Piers, Docks, Boat Lifts and Canopies Serving Detached, Attached or Stacked Dwelling Units; Boat Launch; or Water Taxi\)](#)
3. The required 30-foot front yard may be reduced one foot for each one foot of this yard that is developed as a public use area if:
 - a. Within 30 feet of the front property line, each portion of a structure is set back from the front property line by a distance greater than or equal to the height of that portion above the front property line; and
 - b. Substantially, the entire width of this yard (from north to south property lines) is developed as a public use area; and
 - c. The design of the public use area is specifically approved by the City.
 (Does not apply to Public Access Pier, Boardwalk or Public Access Facility; Piers, Docks, Boat Lifts and Canopies Serving Detached Dwelling Unit; Piers, Docks, Boat Lifts and Canopies Serving Detached, Attached or Stacked Dwelling Units; Public Park; Public Utility Uses; Boat Launch; or Water Taxi.)
4. The required 30-foot front yard may be reduced, subject to all of the following conditions:
 - a. The existing primary structure does not conform to the minimum shoreline setback standard;
 - b. The proposed complete replacement or replacement of portion of the existing primary structure comply with the minimum required shoreline setback established under the provisions of Chapter [83](#) KZC, or as otherwise approved under the shoreline setback reduction provisions established in KZC [83.380](#);
 - c. The front yard for the complete replacement or the portion of replacement may be reduced one foot for each one foot of the shoreline setback that is increased in dimension from the setback of the existing nonconforming primary structure; provided, that subsection (4)(d) of this section is met; and
 - d. Within the front yard, each portion of the replaced or portion of replaced primary structure is set back from the front property line by a distance greater than or equal to the maximum height of that portion above the front property line.
 (Does not apply to Public Access Pier, Boardwalk or Public Access Facility; Piers, Docks, Boat Lifts and Canopies Serving Detached Dwelling Unit; Piers, Docks, Boat Lifts and Canopies Serving Detached, Attached or Stacked Dwelling Units; Public Park; Public Utility Uses; Boat Launch; or Water Taxi).
5. A view corridor must be maintained across 30 percent of the average parcel width. Refer to Chapter [83](#) KZC for additional details.
6. May not use lands waterward of the ordinary high water mark to determine lot size or to calculate allowable density.

7. May also be regulated under the Shoreline Master Program; refer to Chapter [83](#) KZC.

30.19 User Guide.

The charts in KZC [30.25](#) contain the basic zoning regulations that apply in the WD II zones of the City. Use these charts by reading down the left hand column entitled Use. Once you locate the use in which you are interested, read across to find the regulations that apply to that use.

Section 30.20



Section 30.20 – GENERAL REGULATIONS

The following regulations apply to all uses in this zone unless otherwise noted:

1. Refer to Chapter [1](#) KZC to determine what other provisions of this code may apply to the subject property.
2. May not use lands waterward of the ordinary high water mark to determine lot size or to calculate allowable density.
3. The required yard abutting an unopened right-of-way shall be a side property rather than a front property line.
4. [The required rear yard for each use shall be the same as the required rear yard for the same use in the RM zone, unless otherwise specified in sections 30.25.010.9 and 30.25.010.10. \(does not apply to Piers, Docks, Boat Lifts and Canopies Serving Detached Dwelling Unit;](#)
45. May also be regulated under the Shoreline Master Program; refer to Chapter [83](#) KZC.
56. Residential uses abutting Lake Washington may have an associated private shoreline park that is commonly owned and used by residents and guests.

[link to Section 30.25 table](#)

Section 30.25	USE ↓ REGULATIONS ↑	DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS										
		Required Review Process	Lot Size	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)
				Front	Shoreline Setback	Side Property Line	Lot Coverage	Height of Structure				
.010	Detached Dwelling Unit	None	12,500 sq. ft.	For those properties that conform to the standard shoreline setback requirements established in Chapter 83 KZC, either: a. 10' or b. The average of the existing front yards on the properties abutting the subject property to the north and south. Otherwise, 20'. See Spec. Regs. 3, 6, 7 and 11.	See Chapter 83 KZC.	5', but 2 side yards must equal at least 15' or 5' on each side. See Spec. Reg. 5.	50%	For properties with a minimum of 45' of frontage along Lake Washington, 30' above average building elevation. See Spec. Reg. 12. Otherwise, 25' above average building elevation.	E	A	2.0 per unit.	<ol style="list-style-type: none"> 1. No structure, other than a moorage structure, may be waterward of the ordinary high water mark. For the regulations regarding moorage, see Chapter 83 KZC. 2. For this use, only one dwelling unit may be on each lot regardless of lot size. 3. For properties located south of the Lake Avenue West Street End Park, the required front yard may be decreased to the average of the existing front yards on the properties abutting the subject property to the north and south. 4. The dimensions of any required yard, other than as specifically listed, will be determined on a case-by-case basis, unless otherwise specified in this section. The City will use the setback for this use in RS zones as a guide for this use. 45. The gross floor area of any floor above the first story at street or vehicular access easement level shall be reduced by a minimum of 15 percent of the floor area of the first story, subject to the following conditions: <ol style="list-style-type: none"> a. The structure must conform to the standard shoreline setback requirements established in Chapter 83 KZC, or as otherwise approved under the shoreline setback reduction provisions established in KZC 83.380. b. The required floor area reductions shall be incorporated into one or both facades facing the side property lines in order to provide separation between neighboring residences. (See Plate 36.) c. This provision shall not apply to residences that do not contain a ceiling height greater than 16 feet above the street or vehicular access easement level, as measured at the midpoint of the frontage of the subject property on the abutting right-of-way. d. The calculation of gross floor area shall apply the provisions established in KZC 115.42(1). 56. On corner lots with two required front yards, one may be reduced to the average of the front yards for the two adjoining properties fronting the same street as the front yard to be reduced. The applicant may select which front yard will be reduced (see Plate 24).

4

5

REGULATIONS FOR THIS USE CONTINUED ON THE NEXT PAGE

Section 30.25



USE ZONE CHART

Section 30.25		DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS									
		Required Review Process	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)
			Lot Size	REQUIRED YARDS (See Ch. 115)			Lot Coverage					Height of Structure
Front	Shoreline Setback	Side Property Line									
.010	Detached Dwelling Unit (Continued)										<p>REGULATIONS CONTINUED FROM PREVIOUS PAGE</p> <p>6 * The front required yard provisions shall not apply to public street ends located west of Waverly Way, but the required yard shall be regulated as a side yard.</p> <p>7 8. Chapter 115 KZC contains regulations regarding home occupations and other accessory uses, facilities and activities associated with this use.</p> <p>8 9. Garages shall comply with the requirements of KZC 115.43, including required front yard. These requirements are not effective within the disapproval jurisdiction of the Houghton Community Council.</p> <p>9 10. The required yard along the east side of the vehicular access easements known as 5th Avenue West or Lake Avenue West is zero feet.</p> <p>10 11. The required yard along the west side of the vehicular access easements known as 5th Avenue West or Lake Avenue West is either five feet or the average of the existing rear yards on the properties abutting the subject property to the north and south. The garage shall be located to comply with the provisions for parking pads contained in KZC 105.47.</p> <p>11 12. For the increase in height from 25' to 30' above average building elevation, the structure must conform to the standard shoreline setback requirements established in Chapter 83 KZC, or as otherwise approved under the shoreline setback provisions established in KZC 83.380.</p> <p>12 13. At the northern terminus of the 5th Avenue West vehicular access easement, the average parcel depth shall be measured from the ordinary high water mark to the public pedestrian access easement providing access to Waverly Beach Park.</p>

DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS												
Section 30.25	USE ↓ REGULATIONS ↑	Required Review Process	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)	
			Lot Size	REQUIRED YARDS (See Ch. 115)			Lot Coverage					Height of Structure
				Front	Shoreline Setback	Side Property Line						
.020	Piers, Docks, Boat Lifts and Canopies Serving Detached Dwelling Unit	See Chapter 83 KZC.	None	See Chapter 83 KZC.			-	See Chapter 83 KZC.	See Chapter 83 KZC.	See Chapter 83 KZC.	None	1. Refer to Chapter 83 KZC for additional regulations.
.030	Public Utility	Process IIA, Chapter 150 KZC.	None	20'	See Chapter 83 KZC.	5', but 2 side yards must equal at least 15'.	70%	25' above average building elevation.	A	B	See KZC 105.25.	1. Site design must minimize adverse impacts on surrounding residential neighborhoods. 2. If any portion of a structure is adjoining a detached dwelling unit in a low density zone, then either: a. The height of that portion of the structure shall not exceed 15 feet above average building elevation, or b. The maximum horizontal facade shall not exceed 50 feet. See KZC 115.30, Distance Between Structures/Adjacency to Institutional Use, for more details. 3. The dimension of any required yard, other than as specifically listed, will be determined on a case-by-case basis. The City will use the setback for this use in RS zones as a guide. 4. Landscape Category A or B may be required depending on the type of use on the subject property and the impacts associated with the use on nearby uses.
.040	Government Facility Community Facility			C See Spec. Reg. 4.								

Section 30.25



USE ZONE CHART

Section 30.25		DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS									
		Required Review Process	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)
			Lot Size	REQUIRED YARDS (See Ch. 115)			Lot Coverage					Height of Structure
Front	Shoreline Setback	Side Property Line									
.050	Public Park	Development standards will be determined on a case-by-case basis. See Chapter 49 KZC for required review process.						1. If any portion of a structure is adjoining a low density zone, then either: <ul style="list-style-type: none"> a. The height of that portion of the structure shall not exceed 15 feet above average building elevation, or b. The maximum horizontal facade shall not exceed 50 feet in width. See KZC 115.30, Distance Between Structures/Adjacency to Institutional Use, for more details. 2. This use may include a public access pier or boardwalk. See Chapter 83 KZC for regulations regarding these uses.			

30.29 User Guide.

The charts in KZC [30.35](#) contain the basic zoning regulations that apply in the WD III zones of the City. Use these charts by reading down the left hand column entitled Use. Once you locate the use in which you are interested, read across to find the regulations that apply to that use.

Section 30.30



Zone
WDIII

Section 30.30 – GENERAL REGULATIONS

The following regulations apply to all uses in this zone unless otherwise noted:

1. Refer to Chapter [1](#) KZC to determine what other provisions of this code may apply to the subject property.
2. Developments creating four or more new dwelling units shall provide at least 10 percent of the units as affordable housing units as defined in Chapter [5](#) KZC. Two additional units may be constructed for each affordable housing unit provided. In such cases, the minimum lot size listed in the Use Regulations shall be used to establish the base number of units allowed on the site, but shall not limit the size of individual lots. See Chapter [112](#) KZC for additional affordable housing incentives and requirements.
3. May not use lands waterward of the ordinary high water mark to determine lot size or to calculate allowable density.
4. [The required rear yard for each use shall be the same as the required rear yard for the same use in the RM zone, unless otherwise specified in section 30.35.020.5. \(Does not apply to Public Access Pier, Boardwalk, or Public Access Facility; Piers, Docks, Boat Lifts and Canopies Serving Detached Dwelling Unit; Piers, Docks, Boat Lifts and Canopies Serving Detached, Attached or Stacked Dwelling Units; Boat Launch; or Water Taxi\).](#)
- 4-5 The required 30-foot front yard may be reduced, subject to all of the following conditions:
 - a. The existing primary structure does not conform to the minimum shoreline setback standard;
 - b. The proposed complete replacement or replacement of portion of the existing primary structure comply with the minimum required shoreline setback established under the provisions of Chapter [83](#) KZC, or as otherwise approved under the shoreline setback reduction provisions established in KZC [83.380](#);
 - c. The front yard for the complete replacement or the portion of replacement may be reduced one foot for each one foot of the shoreline setback that is increased in dimension from the setback of the existing nonconforming primary structure; provided, that subsection (4)(d) of this regulation is met; and
 - d. Within the front yard, each portion of the replaced or portion of replaced primary structure is set back from the front property line by a distance greater than or equal to the maximum height of that portion above the front property line.

(Does not apply to Public Access Pier, Boardwalk, or Public Access Facility; Piers, Docks, Boat Lifts and Canopies Serving Detached Dwelling Unit; Piers, Docks, Boat Lifts and Canopies Serving Detached, Attached or Stacked Dwelling Units; Public Park; Public Utility Uses; Boat Launch; or Water Taxi).
- 5-6 The required 30-foot front yard may be reduced, subject to the following conditions:
 - a. The existing primary structure does not conform to the minimum shoreline setback standard;
 - b. The front yard may be reduced one foot for each one foot of the shoreline setback that is increased in dimension;
 - c. The new or remodeled primary structure must comply with the minimum required shoreline setback established under the provisions of Chapter [83](#) KZC, or as otherwise approved under the shoreline setback reduction provisions established in KZC [83.380](#); and
 - d. Within 30 feet of the front property line, each portion of a structure is set back from the front property line by a distance greater than or equal to the height of that portion above the front property line.
67. May also be regulated under the Shoreline Master Program, Chapter [83](#) KZC.

[link to Section 30.35 table](#)

115.115 Required Yards

1. General – *(No Change)*
2. Exceptions and Limitations in Some Zones – *(No Change)*
3. Structures and Improvements – No improvement or structure may be in a required yard except as follows:
 - a. - n. *(No Change)*.
 - o. In low density residential zones:
 - 1) Detached garages, including second story uses, utilizing an alley for their primary vehicular access may be located within five (5) feet of the rear property line, if:
 - a) Garage doors will not extend over the property line when open; and
 - b) The garage complies with KZC 115.135, which regulates sight distance at intersections, ~~and-~~
 - c) The portion of the structure that is located within the required rear yard is no taller than the maximum height allowed in the underlying zone.
 - 2) Detached garages, including second story uses, utilizing an alley for their primary vehicular access may extend to the rear property line, if:
 - a) The lot is 50 feet wide at the rear property line on the alley;
 - b) The garage has side access with garage doors that are perpendicular to the alley;
 - c) The garage eaves do not extend over the property line; and
 - d) The garage complies with KZC 115.135, which regulates sight distance at intersections.
 - e) The portion of the structure that is located within the required rear yard is no taller than the maximum height allowed in the underlying zone.
 - 3) Garages without alley access may be located within five (5) feet of the rear property line; provided, that:
 - a) The portion of the structure that is located within the required rear yard is no taller than 15 feet above average building elevation; and
 - b) The rear yard does not abut an access easement that is regulated as a rear property line.
 - p. HVAC and similar types of mechanical equipment may be placed no closer than five (5) feet to a side or rear property line, and shall not be located within a required front yard; provided, that such equipment may be located in a storage shed approved pursuant to subsection (3)(m) of this section or a garage approved pursuant to subsection (3)(o)(2) of this section. All HVAC and similar types of mechanical equipment shall be baffled, shielded, enclosed, or placed on the property in a manner that will ensure compliance with the noise provisions of KZC 115.95.



DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS												
USE	REGULATIONS ()	Required Review Process	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)	
			Lot Size	REQUIRED YARDS (See Ch. 115)			Lot Coverage					Height of Structure
				Front	Side	Rear						
.010	Detached Dwelling Unit	None	As established on the Zoning Map. See Spec. Reg. 1.	20' See Spec. Regs. 3 and 6.	5', but 2 side yards must equal at least 15 feet.	10'	50% See Spec. Reg. 5.	25' above average building elevation.	E	A	2.0 per dwelling unit.	1. Minimum lot size per dwelling unit is as follows: a. In RS 35 zones, the minimum lot size is 35,000 square feet. b. In RS 12.5 zones, the minimum lot size is 12,500 square feet. c. In RS 8.5 zones, the minimum lot size is 8,500 square feet. d. In RS 7.2 zones, the minimum lot size is 7,200 square feet. e. In RS 6.3 zones, the minimum lot size is 6,300 square feet. f. In RS 5.0 zones, the minimum lot size is 5,000 square feet. In RS 35, 12.5, 8.5, 7.2, 6.3 and 5.0 zones, not more than one (1) dwelling unit may be on each lot, regardless of the size of each lot. 2. Floor Area Ratio (F.A.R.) allowed for the subject property is as follows: a. In RS 35 zones, F.A.R. is 20 percent of lot size. b. In RS 12.5 zones, F.A.R. is 35 percent of lot size. c. In RS 8.5 zones, F.A.R. is 50 percent of lot size. d. In RS 7.2 zones, F.A.R. is 50 percent of lot size. e. In RS 6.3 zones, F.A.R. is 50 percent of lot size. f. In RS 5.0 zones, F.A.R. is 50 percent of lot size; provided, that F.A.R. may be increased up to 60 percent of lot size for the first 5,000 square feet of lot area if the following criteria are met: i. The primary roof form of all structures on the site is peaked, with a minimum pitch of four feet vertical: 12 feet horizontal; and ii. A setback of at least 7.5 feet is provided along each side yard. This special regulation is not effective within the disapproval jurisdiction of the Houghton Community Council. See KZC 115.42, Floor Area Ratio (F.A.R.) Calculation for Detached Dwelling Units in Low Density Residential Zones, for additional information. A reduced F.A.R. may be required pursuant to subdivision design requirements in Chapter 22.28 KMC. 3. On corner lots with two required front yards, one (1) may be reduced to the average of the front yards for the two adjoining properties fronting the same street as the front yard to be reduced. The applicant may select which front yard will be reduced (see Plate 24). 4. Chapter 115 KZC contains regulations regarding home occupations and other accessory uses, facilities and activities associated with this use.

4. On lots with two front yards that are essentially parallel to one another, only one front yard must be a minimum of 20 feet. The other will be regulated as a rear yard (minimum 10 foot yard). The front yard shall be the yard adjacent to the front facade of the dwelling unit.

5

REGULATIONS CONTINUED ON NEXT PAGE

Section 15.10



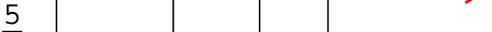
USE ZONE CHART

DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS												
USE	REGULATIONS ()	Required Review Process	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)	
			Lot Size	REQUIRED YARDS (See Ch. 115)			Lot Coverage					Height of Structure
				Front	Side	Rear						
.010	Detached Dwelling Unit (continued)									<p>REGULATIONS CONTINUED FROM PREVIOUS PAGE</p> <p><u>6</u> 5- Residential lots in RS 35 zones within the Bridle Trails neighborhood north of Bridle Trails State Park must contain a minimum area of 10,000 permeable square feet, which shall comply with Special Regulation 6 for large domestic animals in KZC 115.20(4) (chart).</p> <p><u>7</u> 6- Garages shall comply with the requirements of KZC 115.43, including required front yard. These requirements are not effective within the disapproval jurisdiction of the Houghton Community Council.</p>		



DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS												
Section 17.10	USE () REGULATIONS	Required Review Process	MINIMUMS				MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)
			Lot Size	REQUIRED YARDS (See Ch. 115)			Lot Coverage	Height of Structure				
				Front	Side	Rear						
.010	Detached Dwelling Unit	None	As established on the Zoning Map. See Spec. Reg. 1.	20' See Spec. Reg. 6.	5' each side. See Spec. Reg. 3.	10'	50% See Spec. Reg. 5.	30' above average building elevation.	E	A	2.0 per dwelling unit.	<ol style="list-style-type: none"> 1. Minimum lot size per dwelling unit is as follows: <ol style="list-style-type: none"> a. In RSX 35 zones, the minimum lot size is 35,000 square feet. b. In RSX 8.5 zones, the minimum lot size is 8,500 square feet. c. In RSX 7.2 zones, the minimum lot size is 7,200 square feet. d. In RSX 5.0 zones, the minimum lot size is 5,000 square feet. In RSX 35, 8.5, 7.2 and 5.0 zones, not more than one dwelling unit may be on each lot, regardless of the size of the lot. 2. Floor Area Ratio (F.A.R.) allowed for the subject property is as follows: <ol style="list-style-type: none"> a. In RSX 35 zones, F.A.R. is 20 percent of lot size. b. In RSX 12.5 zones, F.A.R. is 35 percent of lot size. c. In RSX 8.5 zones, F.A.R. is 50 percent of lot size. d. In RSX 7.2 zones, F.A.R. is 50 percent of lot size. e. In RSX 5.0 zones, F.A.R. is 50 percent of lot size; provided, that F.A.R. may be increased up to 60 percent of lot size for the first 5,000 square feet of lot area if the following criteria are met: <ol style="list-style-type: none"> i. The primary roof form of all structures on the site is peaked, with a minimum pitch of four feet vertical: 12 feet horizontal; and ii. A setback of at least 7.5 feet is provided along each side yard. See KZC 115.42, Floor Area Ratio (F.A.R.) Calculation for Detached Dwelling Units in Low Density Residential Zones, for additional information. 3. On corner lots, only one front yard must be a minimum of 20 feet. All other front yards shall be regulated as a side yard (minimum five-foot yard). The applicant may select which front yard shall meet the 20-foot requirement. 4. Chapter 115 KZC contains regulations regarding home occupations and other accessory uses, facilities and activities associated with this use. 5. Residential lots in RSX zones within the Bridle Trails neighborhood north and northeast of Bridle Trails State Park must contain a minimum area of 10,000 permeable square feet, which shall comply with Special Regulation 6 for large domestic animals in KZC 115.20(4) (chart). 6. Garages shall comply with the requirements of KZC 115.43, including required front yard. These requirements are not effective within the disapproval jurisdiction of the Houghton Community Council.
							5				6	
											7	

4. On lots with two front yards that are essentially parallel to one another, only one front yard must be a minimum of 20 feet. The other will be regulated as a rear yard (minimum 10 feet). The front yard shall be the yard adjacent to the front facade of the dwelling unit.



Section 18.10	USE () REGULATIONS	DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS										
		Required Review Process	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)	
			Lot Size	REQUIRED YARDS (See Ch. 115)			Lot Coverage					Height of Structure
				Front	Side	Rear						
.010	Detached Dwelling Unit	None	As established on the Zoning Map. See Spec. Regs. 1, 2 and 3.	20' See Spec. Regs. 5 and 6.	5' each side.	10'	50% except 30% for the RSA 1 zone. See Gen. Reg. 3.	30' above average building elevation. See Spec. Reg. 8.	E	A	2.0 per dwelling unit.	<ol style="list-style-type: none"> 1. Maximum units per acre is as follows: <ol style="list-style-type: none"> a. In RSA 1 zone, the maximum units per acre is one dwelling unit. b. In RSA 4 zones, the maximum units per acre is four dwelling units. c. In RSA 6 zones, the maximum units per acre is six dwelling units. d. In RSA 8 zones, the maximum units per acre is eight dwelling units. In RSA 1, 4, 6 and 8 zones, not more than one dwelling unit may be on each lot, regardless of the size of the lot. 2. Minimum lot size per dwelling unit is as follows: <ol style="list-style-type: none"> a. In RSA 1 zone, newly platted lots shall be clustered and configured in a manner to provide generally equal sized lots outside of the required open space area. b. In RSA 4 zones, the minimum lot size is 7,600 square feet. c. In RSA 6 zones, the minimum lot size is 5,100 square feet. d. In RSA 8 zones, the minimum lot size is 3,800 square feet. 3. Road dedication and vehicular access easements or tracts may be included in the density calculation, but not in the minimum lot size per dwelling unit. 4. Floor Area Ratio (F.A.R.) allowed for the subject property is as follows: <ol style="list-style-type: none"> a. In RSA 1 zone, F.A.R. is 20 percent of lot size. b. In RSA 4 zones, F.A.R. is 50 percent of lot size. c. In RSA 6 zones, F.A.R. is 50 percent of lot size. d. In RSA 8 zones, F.A.R. is 50 percent of lot size; provided, that F.A.R. may be increased up to 60 percent of lot size for the first 5,000 square feet of lot area if the primary roof form of all structures on the site is peaked, with a minimum pitch of four feet vertical to 12 feet horizontal. See KZC 115.42, Floor Area Ratio (F.A.R.) Calculation for Detached Dwelling Units in Low Density Residential Zones, for additional information. 5. On corner lots, only one front yard must be a minimum of 20 feet. All other front yards shall be regulated as a side yard (minimum five-foot yard). The applicant may select which front yard shall meet the 20-foot requirement. 6. Garages shall comply with the requirements of KZC 115.43, including required front yard. 7. Chapter 115 KZC contains regulations regarding home occupations and other accessory uses, facilities and activities associated with this use. 8. Maximum height of structure for properties located within the Juanita Beach Camps Plat (Volume 32, Page 35 of King County Records) or the Carr's Park Plat (Unrecorded) shall be 35 feet above average building elevation.
<div style="border: 1px solid red; padding: 5px; color: red;"> 6. On lots with two front yards that are essentially parallel to one another, only one front yard must be a minimum of 20 feet. The other will be regulated as a rear yard (minimum 10 foot yard). The front yard shall be the yard adjacent to front facade of the dwelling unit. </div>												7
												8
												9

5.10 Definitions

.326.5 Front Facade

– The face of a building essentially parallel to the street, access easement or tract serving the subject property. The front facade may have multiple planes, including a covered entry porch. On a corner lot, or other lot with two or more front yards, the front facade shall be the facade that includes the main entry.

To: Planning Commission members
 From: Kathy Weber and Bill Shain, residents of City of Kirkland
 March 6, 2011

We want to express our support for the updating of the City policy regarding backyard chickens. The current part of the City rules affecting backyard chickens were written in 1983 (source: City staff) and modeled after policies of our larger neighboring municipalities.

The current policy permits fewer than 4% of residents (472 of 11,943 lots) to have backyard chickens.* On an immediate basis, we request the City to adopt the current County policy that is in effect for neighborhoods that will be annexed to the City this Spring. These policies allow everyone to have a few (up to 3-6) chickens. After a more significant review of Kirkland City policies can be established to conform more closely with the Seattle policy of up to 8 chickens per backyard. One of the reasons for rapid action is that the season to purchase new chicks for raising hens and egg laying will begin in April.

We have studied with interest the backyard chicken information from Seattle Tilth (seattletilth.org) and the new City of Seattle policy. These new guidelines promote all forms of urban agriculture. These policies were adopted in August 2010 to great local fanfare and now national acclaim.

We have had backyard chickens prior to living in Kirkland and look forward to doing so again in the future. Here's why:

- Chickens are fun, entertaining, have personalities; will come running for snacks
- Instill a sense of community; bring us and our children back to basics; realize where our food comes from
- Through the regular production of eggs, chickens teach us sustainability; provide a local food source, thus decreasing carbon food print of our regular shopping
- Chickens will produce manure that will fertilize our lawns and gardens providing for a greener Kirkland
- By raising heirloom/rare breeds, we will help maintain breeds from becoming extinct
- Chickens are always looking for a good meal. They will scour our lawns looking for grubs and insects, thus eliminating over-wintering bugs, e.g. codling moth and apple maggot under fruit trees.
- Chickens will also eat plants and thus will help reduce common weeds, by preventing them from going to seed.
- Because chickens are omnivores they are great consumers of typical kitchen waste, thus reducing the amount of material being sent to municipal waste.

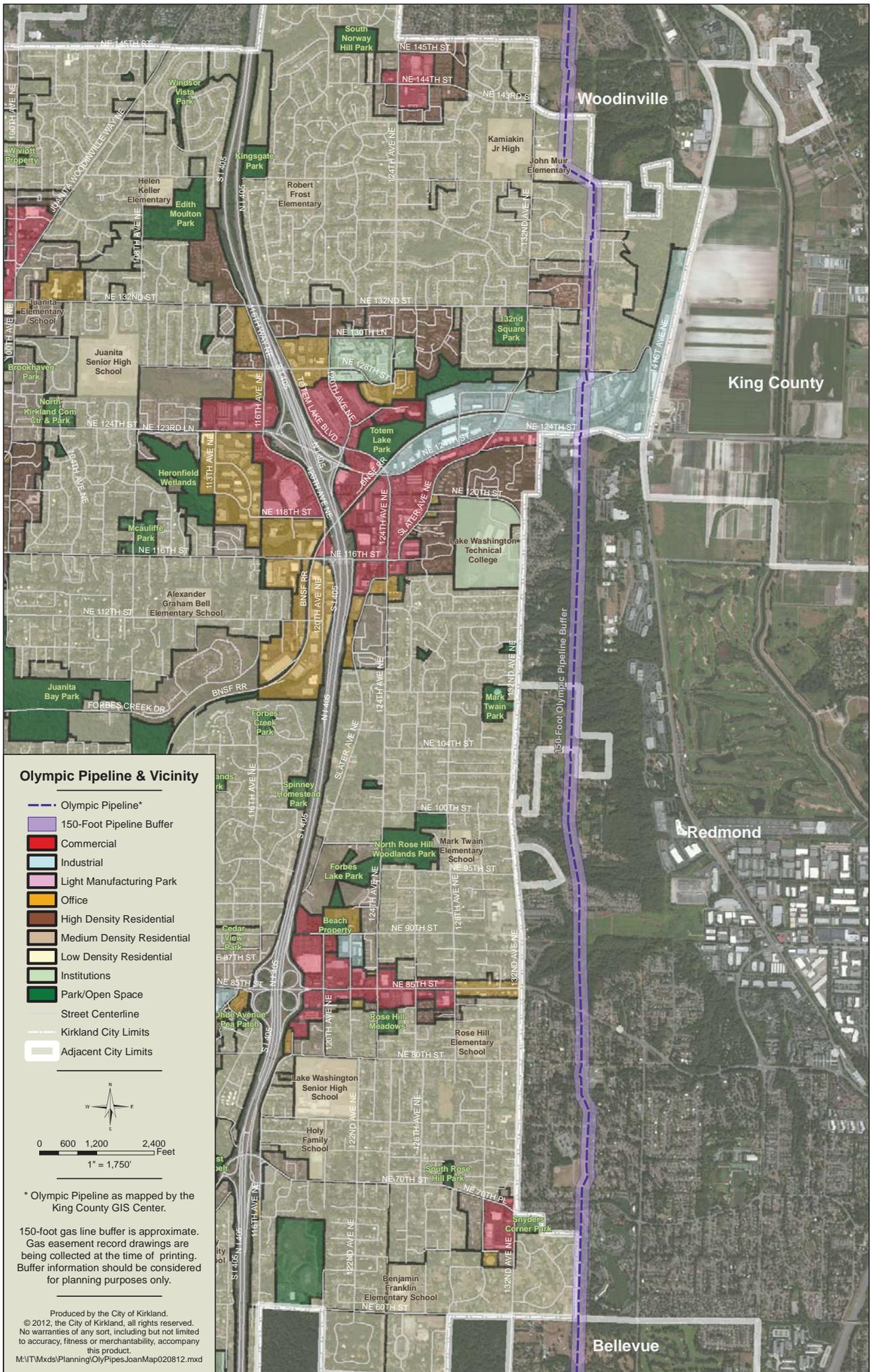
Issues? Non-issues?

- **Smell** – Chickens themselves have very little odor. Regular rotation of runs and cleaning of coops will prevent offensive odors. If it smells bad, you are doing something wrong
- **Flies**- It will kept coops and runs these will not be an issue. When manure is not allowed to accumulate, or if it is stored in closed containers, there should be not problems.
- **Rodents**- The largest temptation for rodents is improperly stored feed and improper husbandry that allows feed to accumulate. These issues are readily accommodated by use of metal trash cans and regular cleanup around feeding areas. Note: if rodents have habitat and food they will abound in any yard, not just ones with chickens
- **Chickens on the loose** can be an issue for eating the neighbor's lettuce and flowers.

The answer here is keep the chickens in a fenced yard or in their coop/run.

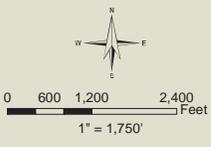
- **Noise** – Chickens/hens make clucking noises much less bothersome than crows and much more melodious than the freeway noise that is a prominent part of my environment.

*According to King County sources, there are 11,943 single family unit lots in Kirkland as of April 2010 (doesn't account for vacant lots), and there are 472 lots over 35,000 sq feet zoned for low or medium density residential. According to this data, then, there are at most 3.95% of single family residents in lots large enough to own backyard chickens.



Olympic Pipeline & Vicinity

- Olympic Pipeline*
- 150-Foot Pipeline Buffer
- Commercial
- Industrial
- Light Manufacturing Park
- Office
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Institutions
- Park/Open Space
- Street Centerline
- Kirkland City Limits
- Adjacent City Limits



* Olympic Pipeline as mapped by the King County GIS Center.

150-foot gas line buffer is approximate. Gas easement record drawings are being collected at the time of printing. Buffer information should be considered for planning purposes only.

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Lake Washington
School District No. 414

Victor J. Scarpelli - Principal
Dana Greenberg - Assistant Principal

Finn Hill Junior High School
8040 N.E. 132nd Street • Kirkland, WA 98034-2522
Office: (425) 936-2340 • Fax: (425) 814-2955
vscarpelli@lwsd.org
dgreenberg@lwsd.org

Dear City of Kirkland,

Imagine that someone fell off their ladder while trying to change the letters on our current reader board. It would be tragic if they got hurt and the school would be responsible for them. Here at Finn Hill Junior High, we need an electric reader board, because at night, you can't read a non-electric reader board, reader boards are helpful and informative, and changing the letters on a non-electric reader board can be dangerous. For these reasons, Finn Hill Junior High should get an electric reader board.

First of all, at night, you can't exactly read a reader board. This is due to the lack of light, which defeats the purpose of having a reader board at all. With an electric reader board, the message will be visible at night, due to the illuminated display. You might not think people would be outside in the dark to see it, but many people go on walks, bike rides, or are looking out their car window. We should have an electric reader board because it would be readable in the dark. We would also be able to control the hours that the reader board is on and we could accommodate the community needs with the new technology that reader boards now come equipped with.

Secondly, reader boards are informative and helpful. You might be thinking we should just get rid of our current reader board and not get a new one, because they sound like they're dangerous and hard to see. There is, however, a purpose to having one. Many students don't remember to tell their parents what's going on at school, so some of those parents stay up-to-date purely based off of reading the school reader board. It's important that parents always know what's going on with school events, because if they don't, they could easily miss a fund raiser that could improve the school. We need an electric reader board so everyone can stay informed with school events.

Finally, it's dangerous to change the letters on non-electric reader boards. You would hope that the person changing the letters on the reader board doesn't lose their balance, but accidents do happen and the person could fall off their ladder. This would be bad for the school and obviously the person who fell off the ladder. The school could lose a lot of money in a lawsuit, plus it could acquire an un-fitting reputation. For this reason, we need an electric reader board.

It's plainly seen that we need an electric reader board. Normal reader boards aren't readable in the dark, reader boards are helpful and informative, and changing the letters on a non-electric reader board is dangerous. Some people would argue that the energy bill for the electric reader board would be too expensive, but keeping people safe and informed is definitely worth the cost of a power bill. For all of these reasons, Finn Hill Junior High needs an electric reader board.

Sincerely,

Peyton Mash

Peyton Mash
8th Grade Student
Finn Hill Junior High

1. The minimum amount of lot area per dwelling unit is 5,000 sq. ft.

Section 55.64	USE ↓ REGULATIONS ↑	DIRECTIONS: FIRST, read REGULATIONS, then, across for REGULATIONS										
		Required Review Process	Lot Size	MINIMUMS			MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)
				REQUIRED YARD (See Ch. 115)	Lot Coverage	Height of Structure	Front	Side					Rear
.010	Detached Dwelling Units	Process IIA, Chapter 150 KZC	5,000 sq. ft.	20'	5'	10'	60%	30' above average building elevation.	E	A	2.0 per unit.	1. For this use, only one dwelling unit may be on each lot regardless of the size of the lot. 2. Chapter 115 KZC contains regulations regarding home occupations and other accessory uses, facilities and activities associated with this use.
.020	Detached, Attached or Stacked Dwelling Units				5' for detached units. For attached or stacked units, 5', but 2 side yards must equal at least 15'. See Spec. Reg. 3.	10' See Spec. Reg. 4.		Detached dwelling units: 30' Attached and/or stacked dwelling units: 50' above average building elevation. See Spec. Reg. 5.	D		1.7 per unit.	2. Chapter 115 KZC contains regulations regarding home occupations and other accessory uses, facilities and activities associated with this use. 3. Chapter 115 KZC contains regulations regarding common recreational space requirements for this use. 3. The side yard may be reduced to zero feet if the side of the dwelling unit is attached to a dwelling unit on an adjoining lot. If one side of a dwelling unit is so attached and the opposite side is not, the side that is not attached must provide a minimum side yard of five feet. 4. The rear yard may be reduced to zero feet if the rear of the dwelling unit is attached to a dwelling unit on an adjoining lot. 5. For attached and/or stacked dwelling units, at least 10 percent of the units provided in new residential developments of four units or greater shall be affordable housing units, as defined in Chapter 5 KZC. See Chapter 112 KZC for additional affordable housing requirements and incentives.
.030	Church		7,200 sq. ft.		20'	20'	70%	30' above average building elevation.	C	B	1 for every 4 people based on maximum occupancy load of worship. See Spec. Reg. 2.	1. The property must be served by a collector or arterial street. 2. No parking is required for day-care or school ancillary to the use.

Section 55.64

Zone
TL 9B

USE ZONE CHART

DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS												
Section 55.64	USE ↓ REGULATIONS ↑	Required Review Process	Lot Size	MINIMUMS			Lot Coverage	MAXIMUMS	Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)
				REQUIRED YARD (See Ch. 115)								
				Front	Side	Rear						
.040	School or Day-Care Center	Process IIA, Chapter 150 KZC	7,200 sq. ft.	If this use can accommodate 50 or more students or children, then:			70%	30' above average building elevation. See Spec. Reg. 8.	D	B	See KZC 105.25.	<ol style="list-style-type: none"> 1. May locate on the subject property only if: <ol style="list-style-type: none"> a. It will not be materially detrimental to the character of the neighborhood in which it is located. b. Site and building design must minimize adverse impacts on surrounding residential neighborhoods. 2. A six-foot-high fence is required only along the property line adjacent to the outside play areas. 3. Structured play areas must be set back from all property lines as follows: <ol style="list-style-type: none"> a. Twenty feet if this use can accommodate 50 or more students or children. b. Ten feet if this use can accommodate 13 to 49 students or children. 4. An on-site passenger loading area must be provided. The City shall determine the appropriate size of the loading area on a case-by-case basis, depending on the number of attendees and the extent of the abutting right-of-way improvements. Carpooling, staggered loading/unloading time, right-of-way improvements or other means may be required to reduce traffic impacts on nearby residential uses. 5. May include accessory living facilities for staff persons. 6. To reduce impacts on nearby residential uses, hours of operation of the use may be limited and parking and passenger loading areas relocated. 7. These uses are subject to the requirements established by the Department of Social and Health Services (WAC Title 388). 8. For school use, structure height may be increased, up to 35 feet, if: <ol style="list-style-type: none"> a. The school can accommodate 200 or more students; and b. The required side and rear yards for the portions of the structure exceeding the basic maximum structure height are increased by one foot for each additional one foot of structure height; and c. The increased height is not specifically inconsistent with the applicable neighborhood plan provisions of the Comprehensive Plan; and d. The increased height will not result in a structure that is incompatible with surrounding uses or improvements.
				50'	50' on each side	50'							If this use can accommodate 13 to 49 students or children, then:
				20'	20' on each side	20'						

(Revised 3/09)

DIRECTIONS: FIRST, read down to find use...THEN, across for REGULATIONS															
Section 55.64	USE ↓ REGULATIONS ↓	Required Review Process	MINIMUMS				MAXIMUMS		Landscape Category (See Ch. 95)	Sign Category (See Ch. 100)	Required Parking Spaces (See Ch. 105)	Special Regulations (See also General Regulations)			
			Lot Size	REQUIRED YARD (See Ch. 115)			Lot Coverage	Height of Structure							
				Front	Side	Rear									
.050	Mini-School or Mini-Day-Care	Process IIA, Chapter 150 KZC	3,600 sq. ft.	20'	5', but 2 side yards must equal at least 15'.	10'	60%	30' above average building elevation.	D	B	See KZC 105.25.	<ol style="list-style-type: none"> May locate on the subject property if: <ol style="list-style-type: none"> It will not be materially detrimental to the character of the neighborhood in which it is located. Site design must minimize adverse impacts on surrounding residential neighborhoods. A six-foot-high fence is required along the property line adjacent to the outside play areas. Structured play areas must be set back from all property lines by five feet. An on-site passenger loading area may be required depending on the number of attendees and the extent of the abutting right-of-way improvements. To reduce impacts on nearby residential uses, hours of operation of the use may be limited and parking and passenger loading areas relocated. May include accessory living facilities for staff persons. These uses are subject to the requirements established by the Department of Social and Health Services (WAC Title 388). 			
.060	Convalescent Center or Nursing Home		7,200 sq. ft.		10' on each side		70%		C	B	1 for each bed.				
.070	Public Utility		None		20' on each side						20'		A See Spec. Reg. 2.	See KZC 105.25.	<ol style="list-style-type: none"> Site design must minimize adverse impacts on surrounding residential neighborhoods. Landscape Category A or B may be required depending on the type of use on the subject property and the impacts associated with the use on the nearby uses.
.080	Government Facility Community Facility		10' on each side		10'						C See Spec. Reg. 2.				
.090	Public Park	Development standards will be determined on case-by-case basis. See Chapter 49 KZC for required review process.													

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Wireless Substitution: State-level Estimates From the National Health Interview Survey, January 2007–June 2010

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Abstract

Objectives—This report presents state-level estimates of the percentage of adults and children living in households that did not have a landline telephone but did have at least one wireless telephone. National estimates for the 12-month time period from July 2009 through June 2010 indicate that 23.9% of adults and 27.5% of children were living in these wireless-only households. Estimates are also presented for selected U.S. counties and groups of counties, for other household telephone service use categories (e.g., those that had only landlines and those that had landlines yet received all or almost all calls on wireless telephones), and for 12-month time periods since January–December 2007.

Methods—Small-area statistical modeling techniques were used to estimate the prevalence of adults and children living in households with various household telephone service types for 93 disjoint geographic areas that make up the entire United States. This modeling was based on January 2007–June 2010 data from the National Health Interview Survey, 2006–2009 data from the American Community Survey, and auxiliary information on the number of listed telephone lines per capita in 2007–2010.

Results—The prevalence of wireless-only adults and children varied substantially across states. State-level estimates for July 2009–June 2010 ranged from 12.8% (Rhode Island and New Jersey) to 35.2% (Arkansas) of adults and from 12.6% (Connecticut and New Jersey) to 46.2% (Arkansas) of children. For adults, the magnitude of the increase from 2007 to 2010 was lowest in New Jersey (7.2 percentage points) and highest in Arkansas (14.5 percentage points).

Keywords: cell phones • telephone surveys • noncoverage • small domain estimation

Introduction

The prevalence and use of wireless telephones (also known as cellular telephones, cell phones, or mobile phones) has changed substantially over the past decade. Today, an ever-increasing number of adults have chosen to use wireless telephones rather than landline telephones to make and receive calls. As of the first half of 2010, more than one in four American households (26.6%) had only wireless telephones—an eightfold increase over just 6 years (1). The prevalence of such “wireless-only” households now markedly exceeds the prevalence of households with only landline telephones (12.9%), and this difference is expected to grow.

The increasing prevalence of wireless-only households has implications for telephone surveys. Many health surveys, political polls, and other research studies are conducted using random-digit-dial (RDD) telephone surveys. Until recently, these surveys did not include wireless telephone numbers in their samples. Now, despite operational challenges, most major survey research organizations include wireless telephone



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National Center for Health Statistics



numbers when conducting RDD telephone surveys. If they did not, the exclusion of households with only wireless telephones (along with the 2.0% of households that have no telephone service) could bias results (2–4).

Best practices for conducting surveys by calling wireless telephones are not yet known, but substantial research has been conducted to address the known operational challenges (5). Statistical challenges also exist when combining samples of wireless-only households with samples of landline households from RDD surveys. To ensure that each sample is appropriately represented in the final data set and appropriately weighted in the final analyses, reliable estimates of the prevalence of wireless-only households are needed (5). Moreover, if the persons interviewed on their wireless telephones are not screened to exclude persons who also have landlines, reliable estimates of the prevalence of landline and wireless telephone service use may be required to address the probability that an individual could be in both samples (5).

The National Health Interview Survey (NHIS) is the most widely cited source for data on the ownership and use of wireless telephones. Every 6 months, the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS) releases a report with the most up-to-date estimates available from the federal government concerning the size and characteristics of the wireless-only population (1). That report, published as part of the NHIS Early Release Program, presents national and regional estimates.

Many RDD telephone surveys are designed to collect data and produce results at the state or local level, including several surveys conducted by CDC (e.g., the Behavioral Risk Factor Surveillance System, the National Immunization Survey, and the State and Local Area Integrated Telephone Survey). For such surveys to effectively combine samples of wireless-only households with samples of landline households, state-level estimates of the prevalence of wireless-only households

are needed. Direct state-level estimates of this prevalence have not been available from NHIS data because the sample size of NHIS is insufficient for direct, reliable annual estimates for most states. However, in March 2009 NCHS released the results of statistically modeled estimates of the prevalence of wireless-only adults at the state level, using data from the 2007 NHIS and the 2008 Current Population Survey's Annual Social and Economic Supplement (6). Those estimates were the first state-level estimates of the size of this population available from the federal government.

In this report, we update those original 2007 estimates. We present results of modeled estimates of the prevalence of wireless-only adults and wireless-only children at the state level, using data from the 2007–2010 NHIS and the 2006–2009 American Community Survey (ACS), along with auxiliary information on the number of listed telephone lines per capita. By incorporating data from multiple sources, the modeled estimates presented here take advantage of the unique strengths of each data set.

This report also expands on the original 2007 estimates in three important ways. First, it includes estimates for 42 additional substate geographic areas in the United States. Second, it includes estimates not only for July 2009–June 2010, but also for 12-month time periods from January 2007 through June 2010. Third, it includes estimates not only for persons living in wireless-only households, but also for additional household telephone service use categories. Estimates are presented for adults and children living in wireless-mostly households (defined as households that have landlines yet receive all or almost all calls on wireless telephones), dual-use households (which receive significant amounts of calls on both landlines and wireless telephones), landline-mostly households (which have wireless telephones yet receive all or almost all calls on landlines), and landline-only households.

Methods

Small-area statistical modeling techniques were used to combine NHIS data collected from within specific geographies (states and some counties) with auxiliary data that are representative of those geographies to produce model-based estimates. Specifically, we used a combination of direct survey estimates from the 2007–2010 NHIS, direct survey estimates from the 2006–2009 ACS, and auxiliary information on the number of listed telephone lines per capita in 2007–2010. The small-area model was used to derive estimates of the proportion of people who lived in households that were wireless-only, wireless-mostly, dual-use, landline-mostly, and landline-only for the following seven 6-month periods: January–June 2007, July–December 2007, January–June 2008, July–December 2008, January–June 2009, July–December 2009, and January–June 2010.

Estimates were derived for adults and children for 93 nonoverlapping areas that make up the entire United States. Twenty-six of these areas were states, and one was the District of Columbia; others areas consisted of selected counties, groups of counties, or the balance of the state population excluding the selected counties. No areas crossed state lines, and every location in the United States was part of one (and only one) of the 93 areas. Areas considered for inclusion in this report included urban areas that receive federal Section 317 immunization grants and other substate areas that are strata for CDC's National Immunization Survey (7). Areas were selected for this report on the basis of available survey sample sizes and the stability of the modeled estimates.

For each telephone category, the 6-month estimates for all 93 small areas were modeled jointly. That is, all 6-month periods were modeled together in a single model rather than separately as seven models (one for each 6-month period). Separate small-area models were fitted for each telephone service use category (e.g., wireless-only,

dual-use) and by age group (adults or children). The model-based estimates for each telephone service use category, small area, and 6-month period were derived using a standard small-area modeling and estimation approach known as “empirical best linear unbiased prediction” (8–10). The model-based estimates were a weighted combination of three distinct sets of estimates: (a) the direct estimate from NHIS for the small area during the 6-month period of interest, (b) a synthetic estimate derived from a regression model involving ACS and other auxiliary data for the small area during the 6-month period of interest, and (c) “adjusted direct estimates” from NHIS for the small area during all 6-month periods other than the 6-month period of interest. By using estimates from all seven 6-month periods, the model-based estimate allows for “borrowing strength” across time. When

these three distinct sets of estimates were combined, the weights associated with each set reflected the relative precision of each estimate.

Although model-based estimates were produced for every small area and 6-month period, consecutive 6-month period estimates were combined to produce 12-month estimates. The small-area estimates for 12-month periods were obtained by averaging two consecutive 6-month estimates. This helped to reduce the variability of the estimates. Then, the 12-month small-area estimates for each phone category were adjusted so that they agreed with the national direct estimates from NHIS for the corresponding phone category and year. The 12-month estimates were further adjusted so that they agreed with the 2008 or 2009 ACS estimate for the population with a telephone (either landline or wireless) for each small area. For states with multiple small areas,

12-month state-level estimates were obtained by appropriately weighting the 12-month small-area estimates by population size.

Further detail regarding this estimation methodology is available in the Technical Notes section.

Estimates for Adults and Children Living in Wireless-only Households

Results from the small-area modeling strategy showed great variation in the prevalence of adults living in wireless-only households across states (Figures 1 and 2). Estimates for July 2009–June 2010 ranged from a high of 35.2% in Arkansas to a low of 12.8% in Rhode Island and New Jersey (Table 1). Other states in which the prevalence of wireless-only adults was relatively high

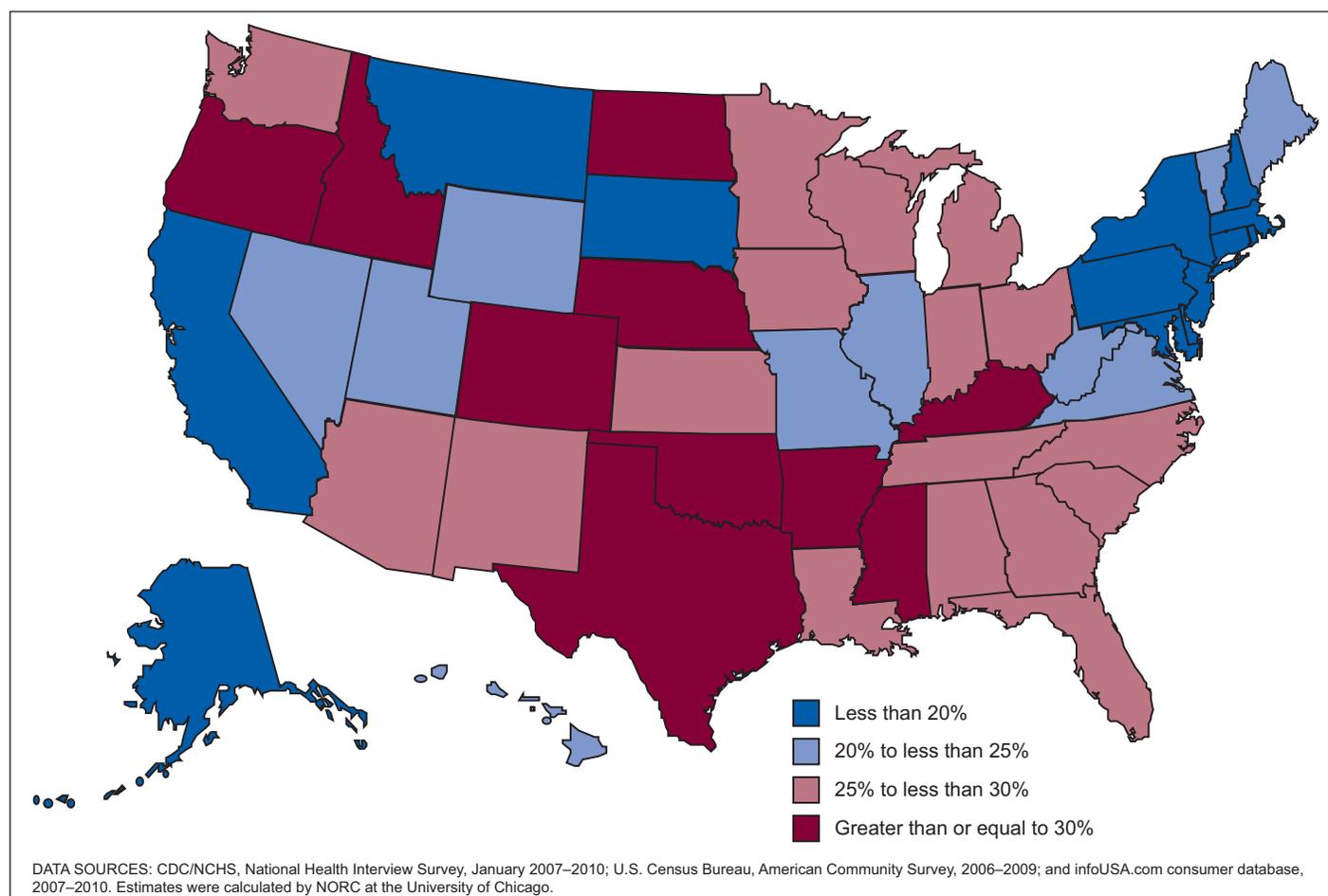


Figure 1. State-level comparisons of the percentage of adults living in wireless-only households, using modeled estimates: United States, July 2009–June 2010

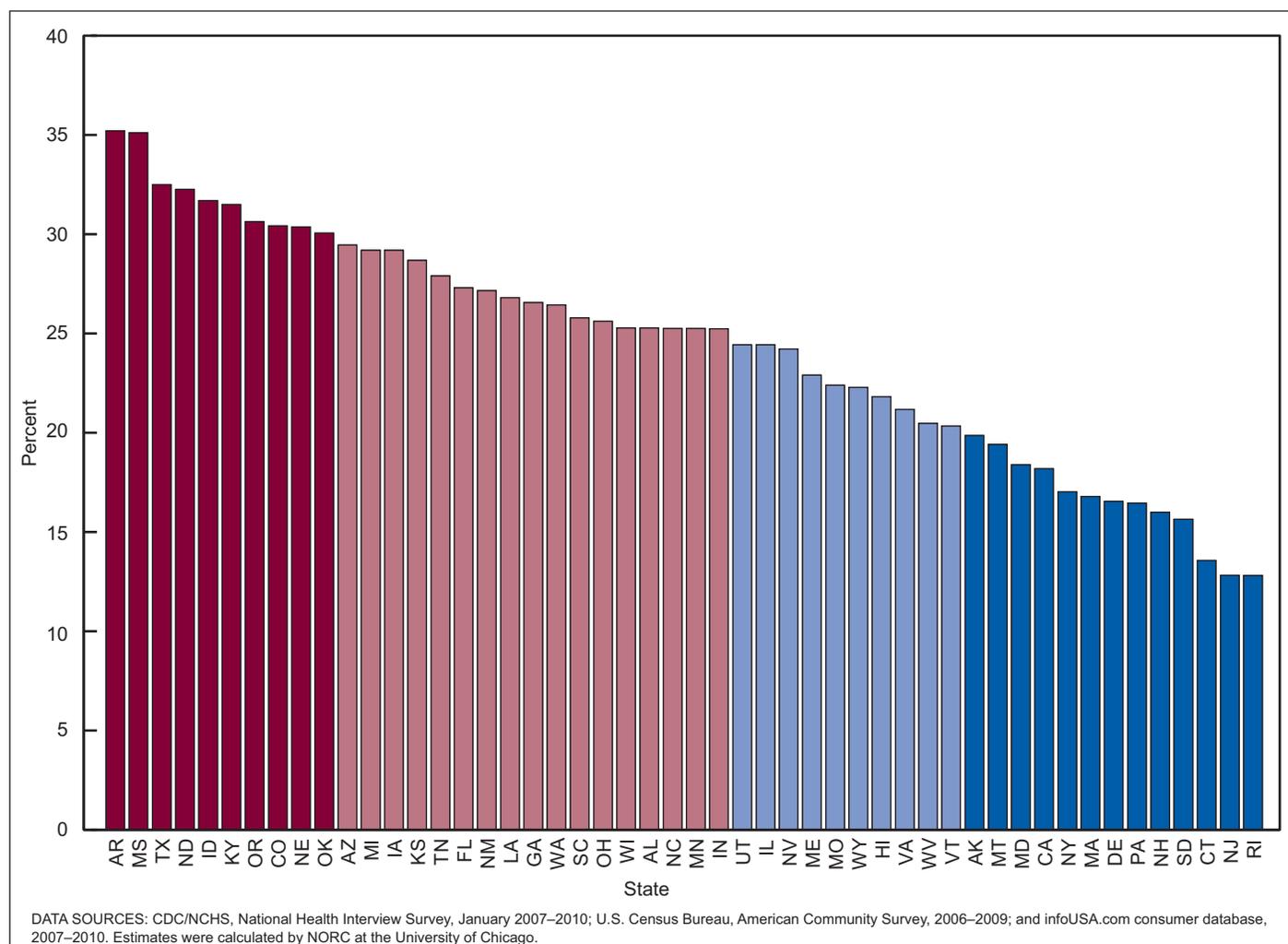


Figure 2. Modeled state-level estimates of the percentage of adults living in wireless-only households: United States, July 2009–June 2010

(exceeding 31%) were Mississippi (35.1%), Texas (32.5%), North Dakota (32.3%), Idaho (31.7%), and Kentucky (31.5%). Several other states in the Northeast region joined Rhode Island and New Jersey with prevalence rates below 17%, including Connecticut (13.6%), New Hampshire (16.0%), Pennsylvania (16.5%), Delaware (16.5%), and Massachusetts (16.8%). Prevalence rates were also relatively low in South Dakota (15.6%).

Similarly, results showed great variation in the prevalence of wireless-only children across states, ranging from a high of 46.2% in Arkansas to a low of 12.6% in Connecticut and New Jersey (Table 2). Other states with a high prevalence of wireless-only children included Mississippi (41.9%), North Dakota (39.7%), New Mexico (38.9%), and Idaho (37.3%). Other states with a

low prevalence of wireless-only children included New Hampshire (15.0%), Massachusetts (15.1%), Rhode Island (15.8%), and New York (16.6%).

Table 1 also provides the modeled estimates of the prevalence of wireless-only adults for each 12-month time period from January 2007 through June 2010. Nationally, the prevalence of wireless-only adults increased from 13.6% to 23.9%, an absolute increase of 10.3 percentage points. As expected, the values increased in every state from 2007 to 2010, and the increase in prevalence was statistically significant in every state. The absolute increase from 2007 to 2010 ranged from a high of 14.5 percentage points in Arkansas to a low of 7.2 percentage points in New Jersey. Other states with a larger-than-average increase in the prevalence of wireless-only adults included Mississippi

(14.1) and North Dakota (13.0). Other states with a smaller-than-average increase included New York (7.3), Pennsylvania (7.5), Rhode Island (7.5), and Utah (7.6). Table 2 can be used to produce similar estimates of change over time for children living in wireless-only households.

Estimates for Adults Living in Households With Wireless Telephones

Table 3 presents modeled estimates for July 2009–June 2010 for the prevalence of adults living in households with various telephone service types, including but not limited to wireless-only status. Estimates are presented for adults living in wireless-mostly households, landline-mostly

households, dual-use households, and landline-only households. These results can be used to obtain the prevalence of adults living in households with any wireless telephones (regardless of whether the wireless telephones are the only telephones). Estimates ranged from a high of 91.8% in Iowa to a low of 47.9% in South Dakota. Other states exceeding 90% included Utah (90.9%), Colorado (90.7%), Kansas (90.7%), Minnesota (90.3%), and Delaware (90.3%). Other states below 70% included Montana (60.6%), Wyoming (63.3%), and Nevada (66.2%).

Table 3 can also be used to look at the prevalence of adults living in households that receive all or almost all calls on wireless telephones, regardless of whether the households have landline telephones. Both wireless-only and wireless-mostly adults are in this group. Estimates of the prevalence of adults living in households where wireless telephones are the primary means of receiving calls ranged from 52.8% in Texas to 24.9% in South Dakota. Other states exceeding 47% included Arkansas (50.9%), Mississippi (49.8%), Arizona (48.1%), and Nebraska (47.3%). Other states below 30% included Connecticut (28.2%), New Hampshire (29.4%), and Rhode Island (29.6%).

Table 4 presents modeled estimates for July 2009–June 2010 for the prevalence of children living in households with various telephone service types. The table can be used to calculate estimates for children similar to those for adults described above.

Discussion

Because of the limited availability of reliable and updated state-level prevalence estimates for the wireless-only population, survey researchers interested in combining state-level samples of wireless-only households with samples of landline households have relied on national or regional estimates of the relative sizes of these two populations (5). Similarly, telecommunications companies seeking greater understanding of conditions in state and local markets have relied on regional estimates of the prevalence of

wireless-only persons (11). The results in this report clearly show that, for many states, national and regional estimates are not sufficiently accurate for these purposes.

Results from the small-area statistical models show great state-level variation in the prevalence of wireless-only adults, even within regions. The range of prevalence exceeded 10 percentage points in the Northeast region, 13 percentage points in the West region, 16 percentage points in the Midwest region, and 18 percentage points in the South region. In fact, in the Midwest region, the state with the lowest prevalence (South Dakota, 15.6%) borders the state with the highest prevalence (North Dakota, 32.3%). Wider ranges within regions were observed for estimates of the prevalence of wireless-only children.

Survey researchers and telecommunications companies interested in local areas may question whether state-level prevalence estimates are sufficiently specific. This report includes estimates for 42 counties or groups of counties, selected from a list of immunization-policy-relevant areas on the basis of available survey sample sizes and the stability of the modeled estimates. Most of these substate areas are major metropolitan cities, and national estimates suggest that adults living in metropolitan areas are more likely to live in wireless-only households than are adults living in nonmetropolitan areas. The mean of the 42 substate-area estimates of the prevalence of wireless-only adults (26.7%) was greater than the mean of the “rest of state” estimates for those 24 states (23.5%). However, for the majority of the substate areas, the prevalence of wireless-only adults did not differ significantly from the area’s corresponding state-level prevalence estimate. Exceptions included Orange County (Orlando, Florida), Cook County (Chicago, Illinois), Madison/St. Clair counties (Metro East St. Louis, Illinois), Marion County (Indianapolis, Indiana), Suffolk County (Boston, Massachusetts), Wayne County (Detroit, Michigan), Essex County (Newark, New Jersey), Allegheny County (Pittsburgh,

Pennsylvania), Davidson County (Nashville, Tennessee), Dallas County (Dallas, Texas), and King County (Seattle, Washington), where the prevalence of wireless-only adults significantly exceeded the corresponding state-level prevalence.

Prevalence estimates are included not only for July 2009–June 2010, but also for 12-month time periods from January 2007 through June 2010. The statistical model based on 3½ years of data—and therefore larger sample sizes in each geographic area—is more stable than a model based on only a single year of data. Estimates from the more stable model are presumed to be more reliable. Thus, we presume that the estimates for 2007 presented in this report are more reliable than the estimates for 2007 presented in our previous report (6). Modeled estimates for January 2007–June 2009 for household telephone service use categories other than wireless-only have not been included in this report but are available upon request.

The estimates developed for this report are based on data from 2007 through 2010. The number of American homes with only wireless telephones continues to grow (1), and it is very likely that the current prevalence rates of wireless-only adults and children are greater than the estimates presented here. Researchers may find that the rates of growth presented in **Tables 1** and **2** for states and substate areas are useful for predicting current or future prevalence rates.

Finally, the state and substate estimates presented here may differ from estimates produced by other sources. For example, Arbitron, Inc., released Fall 2009 estimates of the prevalence of wireless-only households in local radio markets (12). Their estimates are based largely on survey responses received from mailed screening questionnaires, which may be subject to various nonresponse biases. The estimates presented here are less likely to be biased by survey nonresponse (due to the high NHIS response rates), but are more likely to be biased by the focus here on demographic characteristics in the

statistical model. Arbitron's estimates reveal higher wireless-only prevalence estimates in areas with college campuses or military bases; the statistical models here did not include any community characteristics. The NHIS sample also does not include active-duty military personnel. Survey nonresponse, sample characteristics, and model selection should all be considered when evaluating or comparing small-area estimates, including those presented here.

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Table 1. Modeled estimates (with standard errors) of the percentage of adults aged 18 and over living in wireless-only households, by selected geographic areas and time period: United States, January 2007–June 2010

Geographic area	Jan–Dec 2007	Jul 2007– Jun 2008	Jan–Dec 2008	Jul 2008– Jun 2009	Jan–Dec 2009	Jul 2009– Jun 2010
	Percent (standard error)					
Alabama	13.1 (1.3)	15.0 (1.3)	17.9 (1.5)	20.6 (1.6)	22.7 (1.6)	25.3 (1.6)
Jefferson County	13.6 (2.1)	15.8 (2.2)	17.8 (2.3)	19.7 (2.5)	22.6 (2.5)	24.3 (2.4)
Rest of Alabama	13.0 (1.4)	14.9 (1.5)	17.9 (1.7)	20.7 (1.8)	22.7 (1.8)	25.4 (1.8)
Alaska	10.8 (2.4)	13.2 (2.5)	15.2 (2.6)	17.9 (2.8)	20.2 (3.0)	19.9 (2.9)
Arizona	17.2 (1.3)	18.5 (1.4)	20.4 (1.4)	23.8 (1.5)	27.2 (1.5)	29.4 (1.5)
Maricopa County	17.1 (1.6)	18.1 (1.7)	20.0 (1.7)	23.6 (1.9)	27.6 (1.9)	30.3 (1.9)
Rest of Arizona	17.3 (2.2)	19.2 (2.3)	21.0 (2.4)	24.0 (2.6)	26.6 (2.5)	28.2 (2.5)
Arkansas	20.7 (2.1)	23.0 (2.1)	25.5 (2.2)	30.7 (2.3)	33.5 (2.3)	35.2 (2.3)
California	8.9 (0.5)	10.5 (0.5)	12.5 (0.6)	14.9 (0.6)	16.3 (0.6)	18.2 (0.6)
Alameda County	9.6 (1.5)	11.5 (1.6)	13.6 (1.7)	14.5 (1.8)	15.3 (1.8)	17.4 (1.9)
Fresno County	14.2 (1.9)	15.0 (1.9)	15.3 (1.9)	17.2 (1.9)	19.9 (2.0)	21.5 (2.2)
Los Angeles County	7.1 (0.8)	8.6 (0.8)	10.6 (0.9)	14.1 (1.1)	16.1 (1.0)	17.0 (1.0)
Northern Counties ¹	8.0 (1.6)	9.5 (1.7)	10.3 (1.7)	12.6 (1.9)	16.0 (2.1)	18.1 (2.2)
San Bernardino County	8.7 (1.5)	10.3 (1.6)	12.4 (1.7)	14.1 (1.8)	15.5 (1.8)	18.1 (1.8)
San Diego County	7.3 (1.2)	8.7 (1.2)	10.5 (1.3)	13.1 (1.5)	16.2 (1.5)	18.4 (1.6)
Santa Clara County	9.3 (1.4)	9.7 (1.4)	10.1 (1.5)	12.4 (1.7)	15.5 (1.8)	17.7 (1.8)
Rest of California	10.1 (0.8)	11.7 (0.9)	14.1 (1.0)	16.3 (1.1)	16.5 (1.0)	18.8 (0.9)
Colorado	20.4 (1.6)	23.1 (1.7)	25.7 (1.7)	27.5 (1.7)	29.0 (1.7)	30.4 (1.6)
City of Denver Counties ²	26.1 (2.9)	28.6 (3.0)	30.4 (3.0)	31.2 (2.9)	31.6 (2.8)	33.6 (2.8)
Rest of Colorado	16.8 (1.8)	19.6 (1.9)	22.7 (2.0)	25.1 (2.1)	27.4 (2.0)	28.4 (1.9)
Connecticut	5.6 (1.0)	6.7 (1.1)	8.2 (1.2)	9.7 (1.3)	12.1 (1.4)	13.6 (1.4)
Delaware	6.9 (1.7)	8.1 (1.8)	10.3 (2.1)	13.4 (2.4)	15.6 (2.5)	16.5 (2.5)
District of Columbia	13.8 (2.8)	15.9 (2.9)	18.5 (3.1)	21.9 (3.2)	24.9 (3.2)	27.7 (3.4)
Florida	15.2 (0.9)	17.6 (0.9)	20.4 (1.0)	22.9 (1.1)	24.9 (1.0)	27.3 (1.0)
Dade County	14.6 (1.5)	17.2 (1.6)	20.5 (1.7)	22.9 (1.8)	24.7 (1.8)	27.1 (1.7)
Duval County	17.9 (2.5)	21.2 (2.6)	24.3 (2.7)	25.8 (2.8)	26.9 (2.7)	29.3 (2.6)
Orange County	19.7 (2.4)	22.4 (2.5)	25.3 (2.7)	28.1 (2.8)	31.3 (2.7)	34.1 (2.7)
Rest of Florida	14.8 (1.1)	17.1 (1.1)	19.7 (1.2)	22.4 (1.3)	24.3 (1.3)	26.7 (1.2)
Georgia	14.7 (1.2)	16.6 (1.2)	19.4 (1.3)	21.6 (1.4)	23.4 (1.4)	26.5 (1.4)
Fulton/DeKalb Counties	16.7 (2.1)	19.9 (2.3)	24.2 (2.5)	25.4 (2.5)	26.2 (2.5)	30.3 (2.5)
Rest of Georgia	14.2 (1.4)	15.9 (1.4)	18.2 (1.5)	20.7 (1.6)	22.8 (1.6)	25.7 (1.6)
Hawaii	9.3 (1.4)	10.5 (1.5)	12.6 (1.6)	15.6 (1.7)	19.7 (1.9)	21.8 (1.9)
Idaho	19.6 (2.3)	21.2 (2.4)	23.5 (2.5)	27.4 (2.7)	30.5 (2.7)	31.7 (2.6)
Illinois	14.8 (1.1)	16.0 (1.1)	18.1 (1.2)	20.5 (1.2)	22.3 (1.2)	24.4 (1.2)
Cook County	17.8 (1.5)	19.0 (1.6)	22.5 (1.7)	26.0 (1.8)	27.6 (1.7)	29.7 (1.7)
Madison/St. Clair Counties	15.7 (2.5)	19.5 (2.7)	23.1 (3.0)	24.4 (3.0)	26.0 (3.0)	31.5 (3.1)
Rest of Illinois	13.9 (1.4)	14.9 (1.4)	16.5 (1.5)	18.6 (1.5)	20.4 (1.5)	22.3 (1.5)
Indiana	14.1 (1.2)	15.1 (1.2)	17.2 (1.3)	21.1 (1.5)	24.1 (1.4)	25.2 (1.4)
Lake County	8.3 (2.3)	11.7 (2.5)	14.6 (2.8)	15.5 (2.9)	16.6 (2.9)	18.7 (3.1)
Marion County	21.1 (2.6)	22.6 (2.7)	24.9 (2.7)	28.9 (2.9)	32.8 (3.0)	33.5 (2.9)
Rest of Indiana	13.5 (1.4)	14.1 (1.4)	16.2 (1.6)	20.3 (1.7)	23.3 (1.7)	24.4 (1.7)
Iowa	19.7 (2.1)	22.0 (2.1)	24.2 (2.2)	25.7 (2.3)	27.7 (2.2)	29.2 (2.1)
Kansas	17.2 (1.7)	20.0 (1.7)	22.1 (1.8)	24.1 (1.8)	26.7 (1.9)	28.7 (1.8)
Johnson/Wyandotte Counties	7.5 (1.7)	10.1 (1.9)	13.7 (2.2)	16.1 (2.4)	18.1 (2.5)	21.2 (2.6)
Rest of Kansas	20.4 (2.1)	23.2 (2.2)	24.8 (2.2)	26.7 (2.3)	29.5 (2.3)	31.1 (2.2)
Kentucky	21.7 (2.0)	24.0 (2.1)	26.6 (2.1)	28.4 (2.1)	30.2 (2.1)	31.5 (2.1)
Louisiana	14.1 (1.5)	15.5 (1.6)	17.1 (1.7)	20.3 (1.9)	24.2 (1.8)	26.8 (1.8)
Maine	14.2 (2.1)	15.9 (2.2)	18.0 (2.2)	20.5 (2.4)	22.5 (2.3)	22.9 (2.4)
Maryland	9.8 (1.1)	10.7 (1.1)	11.6 (1.2)	14.4 (1.3)	16.6 (1.3)	18.4 (1.4)
Baltimore City	14.1 (2.4)	14.4 (2.4)	15.2 (2.5)	19.4 (2.7)	23.1 (2.8)	23.7 (2.8)
Rest of Maryland	9.2 (1.2)	10.2 (1.3)	11.1 (1.3)	13.7 (1.4)	15.8 (1.4)	17.7 (1.5)
Massachusetts	7.9 (0.9)	9.4 (1.0)	11.5 (1.1)	13.5 (1.2)	16.0 (1.2)	16.8 (1.2)
Suffolk County	16.4 (2.5)	19.8 (2.8)	22.3 (3.0)	22.6 (2.9)	23.1 (2.8)	25.2 (2.8)
Rest of Massachusetts	7.0 (1.0)	8.3 (1.1)	10.3 (1.2)	12.5 (1.3)	15.2 (1.3)	15.8 (1.3)
Michigan	16.9 (1.2)	18.7 (1.3)	21.0 (1.3)	23.4 (1.4)	26.7 (1.3)	29.2 (1.3)
Wayne County	19.1 (2.2)	22.1 (2.2)	25.2 (2.2)	28.1 (2.4)	30.6 (2.5)	34.9 (2.4)
Rest of Michigan	16.7 (1.3)	18.4 (1.4)	20.7 (1.4)	23.1 (1.5)	26.3 (1.5)	28.6 (1.4)
Minnesota	15.8 (1.3)	18.6 (1.3)	21.0 (1.4)	22.4 (1.4)	24.1 (1.4)	25.2 (1.4)
Twin Cities Counties ³	17.1 (1.7)	20.3 (1.8)	23.0 (1.9)	24.2 (1.9)	25.4 (1.9)	26.1 (1.8)
Rest of Minnesota	14.4 (1.8)	16.7 (1.9)	18.8 (2.0)	20.4 (2.1)	22.7 (2.1)	24.3 (2.1)
Mississippi	21.0 (1.9)	25.0 (2.0)	28.2 (2.0)	30.3 (2.1)	33.2 (2.0)	35.1 (2.0)

See footnotes at end of table.

Table 1. Modeled estimates (with standard errors) of the percentage of adults aged 18 and over living in wireless-only households, by selected geographic areas and time period: United States, January 2007–June 2010—Con.

Geographic area	Jan–Dec 2007	Jul 2007– Jun 2008	Jan–Dec 2008	Jul 2008– Jun 2009	Jan–Dec 2009	Jul 2009– Jun 2010
	Percent (standard error)					
Missouri	10.1 (1.1)	12.5 (1.2)	15.0 (1.3)	17.6 (1.4)	21.0 (1.5)	22.4 (1.5)
St. Louis County/City	13.9 (2.0)	17.2 (2.1)	19.5 (2.2)	22.9 (2.4)	26.7 (2.4)	26.9 (2.3)
Rest of Missouri	9.0 (1.3)	11.0 (1.4)	13.6 (1.6)	16.1 (1.7)	19.4 (1.7)	21.1 (1.8)
Montana	9.5 (2.0)	11.3 (2.1)	14.0 (2.3)	16.6 (2.5)	18.5 (2.5)	19.4 (2.6)
Nebraska	19.0 (2.2)	21.1 (2.3)	23.5 (2.4)	27.9 (2.6)	29.9 (2.5)	30.4 (2.4)
Nevada	11.6 (1.4)	12.6 (1.4)	14.3 (1.5)	18.1 (1.7)	22.3 (1.8)	24.2 (1.8)
Clark County	11.5 (1.6)	11.8 (1.6)	12.9 (1.7)	17.1 (2.0)	21.8 (2.1)	24.1 (2.1)
Rest of Nevada	12.1 (2.3)	14.3 (2.6)	17.7 (2.8)	20.8 (3.0)	23.6 (3.1)	24.6 (3.2)
New Hampshire	7.2 (1.5)	8.3 (1.6)	9.4 (1.7)	13.0 (1.9)	15.8 (2.0)	16.0 (2.0)
New Jersey	5.6 (0.8)	6.6 (0.9)	8.0 (0.9)	9.7 (1.0)	11.4 (1.0)	12.8 (1.0)
Essex County	7.1 (2.0)	12.0 (2.3)	18.4 (2.9)	21.2 (3.0)	23.9 (3.1)	26.5 (3.0)
Rest of New Jersey	5.5 (0.8)	6.5 (0.9)	7.7 (0.9)	9.3 (1.1)	11.0 (1.1)	12.4 (1.1)
New Mexico	17.2 (1.7)	18.4 (1.7)	20.2 (1.8)	23.5 (1.9)	26.3 (1.9)	27.2 (1.8)
Southern Counties ⁴	19.4 (2.5)	20.3 (2.6)	21.2 (2.7)	25.5 (2.9)	28.3 (2.9)	29.3 (2.9)
Rest of New Mexico	16.5 (2.1)	17.7 (2.1)	19.9 (2.2)	22.7 (2.3)	25.6 (2.3)	26.3 (2.2)
New York	9.8 (0.8)	10.6 (0.8)	11.9 (0.8)	13.9 (0.9)	15.4 (0.9)	17.0 (0.9)
City of New York Counties ⁵	9.5 (1.0)	10.5 (1.0)	13.0 (1.1)	15.2 (1.3)	16.9 (1.2)	19.1 (1.3)
Rest of New York	9.9 (1.1)	10.7 (1.2)	11.1 (1.2)	12.9 (1.3)	14.4 (1.3)	15.4 (1.3)
North Carolina	15.1 (1.2)	17.5 (1.3)	19.8 (1.3)	21.8 (1.4)	23.7 (1.3)	25.2 (1.3)
North Dakota	19.2 (2.9)	20.6 (2.9)	22.7 (3.1)	27.5 (3.3)	31.8 (3.4)	32.3 (3.4)
Ohio	14.3 (1.0)	16.4 (1.1)	18.2 (1.1)	20.6 (1.2)	23.2 (1.1)	25.6 (1.1)
Cuyahoga County	9.1 (1.5)	10.6 (1.6)	12.7 (1.7)	16.6 (1.9)	19.6 (2.0)	21.4 (2.0)
Franklin County	18.7 (2.5)	20.5 (2.6)	22.5 (2.6)	25.4 (2.7)	28.2 (2.8)	30.6 (2.8)
Rest of Ohio	14.5 (1.2)	16.7 (1.3)	18.5 (1.3)	20.6 (1.4)	23.0 (1.4)	25.6 (1.4)
Oklahoma	21.3 (1.9)	23.5 (2.0)	23.9 (2.0)	25.6 (2.0)	28.6 (2.0)	30.1 (2.0)
Oregon	18.5 (1.9)	19.6 (2.0)	21.5 (2.0)	24.2 (2.2)	27.6 (2.2)	30.6 (2.2)
Pennsylvania	9.0 (0.8)	10.2 (0.9)	11.7 (0.9)	13.8 (1.0)	15.4 (1.0)	16.5 (1.0)
Allegheny County	16.6 (2.8)	18.2 (2.9)	19.8 (3.0)	22.3 (3.1)	23.6 (3.1)	25.0 (3.1)
Philadelphia County	7.9 (1.7)	10.4 (1.9)	13.0 (2.1)	14.8 (2.2)	16.5 (2.2)	18.4 (2.2)
Rest of Pennsylvania	8.2 (1.0)	9.1 (1.0)	10.5 (1.1)	12.6 (1.2)	14.2 (1.2)	15.1 (1.1)
Rhode Island	5.3 (1.3)	5.8 (1.4)	6.3 (1.4)	9.4 (1.7)	11.9 (1.9)	12.8 (1.9)
South Carolina	15.4 (1.6)	17.1 (1.6)	19.3 (1.7)	21.1 (1.8)	22.8 (1.7)	25.8 (1.7)
South Dakota	7.7 (1.7)	9.0 (1.9)	11.1 (2.1)	12.5 (2.1)	14.0 (2.3)	15.6 (2.4)
Tennessee	18.6 (1.4)	20.5 (1.5)	22.1 (1.5)	24.4 (1.5)	25.6 (1.5)	27.9 (1.5)
Davidson County	25.2 (3.4)	27.0 (3.4)	28.3 (3.4)	30.4 (3.5)	33.4 (3.4)	37.5 (3.5)
Shelby County	24.0 (3.0)	25.8 (3.1)	27.5 (3.1)	30.2 (3.0)	32.4 (3.0)	32.9 (2.9)
Rest of Tennessee	16.7 (1.7)	18.6 (1.7)	20.3 (1.8)	22.6 (1.9)	23.2 (1.8)	25.7 (1.8)
Texas	19.9 (0.9)	22.6 (0.9)	24.5 (1.0)	27.2 (1.0)	30.0 (1.0)	32.5 (1.0)
Bexar County	17.9 (2.0)	19.4 (2.1)	21.7 (2.2)	24.9 (2.3)	27.0 (2.3)	29.1 (2.2)
Dallas County	27.0 (2.2)	30.3 (2.3)	33.1 (2.3)	36.5 (2.4)	40.7 (2.4)	43.2 (2.3)
El Paso County	19.8 (2.4)	20.0 (2.4)	22.0 (2.6)	27.6 (2.9)	31.0 (2.8)	32.8 (2.7)
Harris County	20.1 (1.5)	23.7 (1.6)	27.4 (1.7)	29.4 (1.8)	31.0 (1.7)	32.4 (1.6)
Rest of Texas	19.1 (1.1)	21.9 (1.2)	23.3 (1.3)	25.8 (1.3)	28.6 (1.3)	31.3 (1.3)
Utah	16.8 (2.1)	17.7 (2.2)	18.5 (2.2)	20.0 (2.2)	21.6 (2.2)	24.4 (2.3)
Vermont	8.2 (1.9)	10.5 (2.1)	13.8 (2.4)	17.0 (2.6)	20.4 (2.8)	20.3 (2.8)
Virginia	11.7 (1.2)	14.1 (1.3)	16.7 (1.4)	19.7 (1.5)	20.6 (1.5)	21.2 (1.4)
Washington	15.3 (1.1)	16.8 (1.2)	18.1 (1.2)	20.9 (1.3)	23.6 (1.3)	26.4 (1.3)
Eastern Counties ⁶	20.1 (2.4)	21.1 (2.3)	22.5 (2.3)	24.1 (2.3)	25.3 (2.4)	28.6 (2.5)
King County	21.5 (2.3)	23.3 (2.3)	24.6 (2.4)	27.4 (2.4)	29.7 (2.3)	31.8 (2.3)
Western Counties ⁷	9.5 (1.8)	10.1 (1.8)	11.5 (1.9)	14.8 (2.1)	17.5 (2.2)	20.4 (2.3)
Rest of Washington	12.4 (1.9)	14.2 (2.0)	15.4 (2.1)	18.4 (2.3)	21.7 (2.4)	25.0 (2.5)
West Virginia	10.4 (1.8)	12.3 (1.9)	14.2 (2.0)	16.0 (2.2)	18.5 (2.3)	20.5 (2.3)
Wisconsin	13.4 (1.4)	14.5 (1.4)	16.4 (1.5)	19.8 (1.6)	22.5 (1.6)	25.3 (1.6)
Milwaukee County	16.2 (2.1)	18.4 (2.2)	20.2 (2.4)	23.4 (2.5)	27.3 (2.6)	30.7 (2.7)
Rest of Wisconsin	12.9 (1.5)	13.8 (1.6)	15.7 (1.7)	19.1 (1.8)	21.6 (1.8)	24.2 (1.8)
Wyoming	14.1 (2.1)	14.9 (2.2)	16.0 (2.4)	19.8 (2.5)	20.9 (2.6)	22.3 (2.6)

¹Includes Del Norte, Siskiyou, Modoc, Lassen, Shasta, Trinity, Humboldt, Mendocino, Tehama, Plumas, Butte, Glenn, Colusa, Lake, and Sierra.²Includes Denver, Adams, Arapahoe, and Douglas.³Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.⁴Includes Chaves, Lea, Eddy, Lincoln, Socorro, Catron, Sierra, Curry, Roosevelt, De Baca, Dona Ana, Otero, Luna, Grant, and Hidalgo.⁵Includes Queens, Kings, Richmond, New York, and Bronx.⁶Includes Asotin, Columbia, Garfield, Whitman, Adams, Walla Walla, Stevens, Ferry, Lincoln, Chelan, Douglas, Okanogan, Benton, Franklin, Grant, Kittitas, Klickitat, and Pend Oreille.⁷Includes Kitsap, Whatcom, Thurston, Skagit, Island, Cowlitz, Mason, Clallam, Jefferson, Grays Harbor, Lewis, Pacific, San Juan, Skamania, and Wahkiakum.

Table 2. Modeled estimates (with standard errors) of the percentage of children under age 18 years living in wireless-only households, by selected geographic areas and time period: United States, January 2007–June 2010

Geographic area	Jan–Dec 2007	Jul 2007– Jun 2008	Jan–Dec 2008	Jul 2008– Jun 2009	Jan–Dec 2009	Jul 2009– Jun 2010
	Percent (standard error)					
Alabama	13.5 (2.2)	18.3 (2.5)	22.6 (2.8)	22.4 (2.8)	24.7 (2.7)	30.9 (2.8)
Jefferson County	18.1 (4.0)	23.4 (4.3)	24.6 (4.4)	24.6 (4.5)	29.5 (4.5)	33.1 (4.3)
Rest of Alabama	12.7 (2.5)	17.5 (2.8)	22.2 (3.2)	22.1 (3.2)	23.9 (3.0)	30.5 (3.1)
Alaska	*7.2 (3.1)	*11.5 (3.8)	13.4 (3.9)	14.3 (4.2)	19.1 (4.7)	21.0 (4.9)
Arizona	19.5 (2.1)	20.2 (2.1)	21.2 (2.2)	25.1 (2.4)	30.7 (2.4)	34.8 (2.4)
Maricopa County	18.4 (2.5)	18.4 (2.5)	20.0 (2.6)	24.8 (2.8)	31.3 (2.9)	35.5 (3.1)
Rest of Arizona	21.4 (3.7)	23.4 (3.8)	23.2 (3.8)	25.6 (4.1)	29.8 (3.9)	33.6 (3.7)
Arkansas	28.2 (3.9)	32.2 (3.9)	33.3 (3.7)	37.1 (3.8)	41.6 (3.7)	46.2 (3.8)
California	7.7 (0.7)	10.1 (0.8)	12.5 (0.9)	14.8 (1.0)	16.5 (0.9)	19.7 (0.9)
Alameda County	*5.1 (1.8)	7.8 (2.2)	9.9 (2.4)	9.6 (2.5)	11.5 (2.6)	15.4 (2.8)
Fresno County	13.5 (2.7)	13.5 (2.7)	14.1 (2.8)	19.0 (3.3)	24.4 (3.6)	27.8 (3.8)
Los Angeles County	6.4 (1.1)	7.9 (1.2)	9.2 (1.3)	12.4 (1.6)	14.5 (1.5)	17.4 (1.5)
Northern Counties ¹	*7.6 (2.3)	9.4 (2.5)	9.7 (2.5)	13.1 (2.7)	19.8 (3.3)	22.9 (3.5)
San Bernardino County	9.4 (2.4)	11.2 (2.5)	13.6 (2.7)	14.9 (2.8)	18.1 (2.8)	22.5 (3.0)
San Diego County	7.0 (1.9)	7.6 (2.0)	8.7 (2.1)	10.9 (2.3)	16.1 (2.5)	18.6 (2.5)
Santa Clara County	7.6 (2.0)	10.0 (2.2)	9.1 (2.1)	10.6 (2.3)	14.8 (2.6)	17.5 (2.7)
Rest of California	8.3 (1.2)	11.9 (1.5)	15.6 (1.6)	17.7 (1.8)	17.5 (1.6)	20.7 (1.5)
Colorado	18.6 (2.5)	21.5 (2.7)	22.6 (2.7)	22.7 (2.7)	27.4 (2.6)	31.1 (2.6)
City of Denver Counties ²	23.2 (4.7)	26.9 (4.9)	28.8 (5.0)	28.1 (5.0)	31.4 (4.8)	36.0 (4.7)
Rest of Colorado	15.2 (2.7)	17.7 (2.8)	18.1 (2.8)	18.7 (2.8)	24.5 (2.8)	27.5 (2.8)
Connecticut	*3.7 (1.3)	*4.3 (1.4)	6.3 (1.7)	7.5 (1.9)	10.1 (2.1)	12.6 (2.2)
Delaware	*6.6 (2.7)	*8.8 (3.1)	*10.9 (3.5)	13.3 (3.8)	16.8 (4.1)	20.1 (4.3)
District of Columbia	*10.5 (4.8)	*12.6 (5.1)	*15.8 (5.5)	*19.3 (6.0)	25.0 (6.4)	30.3 (7.0)
Florida	16.2 (1.5)	19.3 (1.5)	22.3 (1.6)	25.1 (1.8)	30.5 (1.7)	34.2 (1.6)
Dade County	16.1 (2.6)	19.1 (2.7)	24.1 (3.0)	25.3 (3.0)	28.9 (2.9)	35.2 (3.0)
Duval County	19.3 (3.9)	21.9 (4.2)	23.4 (4.2)	25.2 (4.3)	27.4 (4.1)	32.0 (4.0)
Orange County	18.4 (3.9)	22.8 (4.0)	27.0 (4.4)	27.6 (4.5)	33.8 (4.4)	39.5 (4.3)
Rest of Florida	15.8 (1.8)	18.8 (1.9)	21.5 (2.0)	24.8 (2.3)	30.7 (2.2)	33.7 (2.1)
Georgia	17.2 (2.1)	19.9 (2.2)	22.7 (2.2)	25.1 (2.4)	27.8 (2.3)	33.5 (2.3)
Fulton/DeKalb Counties	15.7 (3.5)	19.6 (3.7)	22.1 (4.0)	20.0 (3.8)	22.4 (3.9)	29.8 (4.0)
Rest of Georgia	17.5 (2.4)	20.0 (2.5)	22.8 (2.5)	26.1 (2.7)	28.8 (2.7)	34.2 (2.6)
Hawaii	*7.5 (2.3)	11.1 (2.6)	14.6 (3.0)	16.1 (3.3)	20.4 (3.5)	23.6 (3.4)
Idaho	23.1 (3.9)	25.1 (4.0)	26.2 (4.1)	31.8 (4.5)	33.8 (4.1)	37.3 (3.9)
Illinois	13.1 (1.8)	15.4 (1.9)	17.9 (1.9)	19.5 (2.1)	22.4 (2.0)	27.4 (2.1)
Cook County	13.5 (2.2)	16.9 (2.5)	21.6 (2.9)	22.1 (2.9)	23.9 (2.7)	29.0 (2.7)
Madison/St. Clair Counties	12.8 (3.6)	19.4 (4.3)	22.9 (4.6)	22.7 (4.7)	28.7 (4.9)	38.0 (5.3)
Rest of Illinois	13.0 (2.3)	14.7 (2.4)	16.6 (2.4)	18.5 (2.6)	21.6 (2.6)	26.3 (2.6)
Indiana	15.3 (2.0)	16.3 (2.1)	17.9 (2.2)	22.4 (2.5)	27.8 (2.5)	31.2 (2.4)
Lake County	17.5 (4.8)	23.3 (5.1)	25.6 (5.3)	26.3 (5.6)	29.7 (5.4)	35.1 (5.7)
Marion County	18.3 (3.9)	20.2 (4.1)	22.7 (4.3)	25.3 (4.4)	32.4 (4.8)	36.7 (4.7)
Rest of Indiana	14.5 (2.5)	14.9 (2.5)	16.1 (2.6)	21.4 (3.0)	26.7 (3.0)	29.7 (2.9)
Iowa	14.3 (3.0)	17.1 (3.0)	17.7 (3.1)	19.2 (3.3)	24.6 (3.3)	29.8 (3.2)
Kansas	18.2 (2.7)	22.3 (2.9)	24.8 (3.0)	26.9 (3.1)	31.1 (3.1)	34.8 (2.9)
Johnson/Wyandotte Counties	*5.4 (2.3)	*8.8 (2.8)	12.8 (3.3)	14.6 (3.5)	17.4 (3.8)	23.0 (4.1)
Rest of Kansas	22.7 (3.5)	27.0 (3.7)	29.1 (3.9)	31.3 (4.0)	35.9 (3.8)	39.0 (3.7)
Kentucky	22.4 (3.1)	24.3 (3.2)	29.1 (3.4)	29.3 (3.3)	30.9 (3.2)	34.9 (3.2)
Louisiana	17.1 (2.6)	19.0 (2.7)	22.4 (2.9)	26.7 (3.2)	31.1 (2.9)	34.4 (3.0)
Maine	*4.8 (2.0)	10.5 (2.9)	15.4 (3.6)	16.4 (3.8)	19.4 (3.7)	21.6 (3.8)
Maryland	6.0 (1.4)	6.9 (1.5)	8.6 (1.7)	11.4 (2.0)	15.0 (2.1)	18.0 (2.2)
Baltimore City	11.7 (3.3)	13.6 (3.5)	15.3 (3.7)	18.0 (3.9)	22.3 (4.2)	27.4 (4.5)
Rest of Maryland	5.3 (1.5)	6.0 (1.6)	7.8 (1.9)	10.6 (2.2)	14.1 (2.3)	16.8 (2.4)
Massachusetts	5.3 (1.3)	6.7 (1.4)	8.5 (1.5)	9.8 (1.8)	12.7 (1.9)	15.1 (2.0)
Suffolk County	15.1 (4.5)	20.1 (5.3)	21.3 (5.7)	22.0 (5.5)	25.5 (5.6)	28.1 (5.7)
Rest of Massachusetts	4.4 (1.3)	5.5 (1.4)	7.3 (1.6)	8.7 (1.8)	11.6 (2.0)	14.1 (2.1)
Michigan	15.3 (2.0)	18.0 (2.1)	22.0 (2.3)	25.4 (2.5)	30.6 (2.5)	35.6 (2.4)
Wayne County	22.9 (4.1)	27.7 (3.9)	30.2 (4.0)	32.9 (4.3)	38.6 (4.5)	42.9 (4.2)
Rest of Michigan	14.5 (2.2)	17.0 (2.3)	21.2 (2.5)	24.7 (2.7)	29.7 (2.7)	34.7 (2.6)
Minnesota	8.7 (1.6)	13.1 (1.9)	16.1 (2.0)	17.8 (2.2)	20.8 (2.3)	23.5 (2.3)
Twin Cities Counties ³	7.2 (2.0)	12.2 (2.4)	16.3 (2.7)	17.6 (2.8)	19.5 (2.9)	21.0 (2.9)
Rest of Minnesota	10.5 (2.6)	14.2 (3.0)	15.8 (3.1)	17.9 (3.4)	22.4 (3.5)	26.5 (3.6)
Mississippi	20.9 (3.3)	26.5 (3.4)	31.2 (3.6)	32.9 (3.7)	36.0 (3.4)	41.9 (3.3)

See footnotes at end of table.

Table 2. Modeled estimates (with standard errors) of the percentage of children under age 18 years living in wireless-only households, by selected geographic areas and time period: United States, January 2007–June 2010—Con.

Geographic area	Jan–Dec 2007	Jul 2007– Jun 2008	Jan–Dec 2008	Jul 2008– Jun 2009	Jan–Dec 2009	Jul 2009– Jun 2010
	Percent (standard error)					
Missouri	8.9 (1.9)	11.3 (2.0)	16.1 (2.4)	18.7 (2.6)	22.2 (2.6)	26.5 (2.7)
St. Louis County/City	*8.1 (2.5)	10.8 (2.8)	14.4 (3.2)	16.1 (3.3)	19.2 (3.3)	22.9 (3.5)
Rest of Missouri	9.1 (2.3)	11.5 (2.5)	16.6 (2.9)	19.5 (3.2)	23.1 (3.1)	27.5 (3.3)
Montana	13.4 (3.5)	18.3 (3.9)	23.9 (4.3)	26.1 (4.5)	30.7 (4.6)	35.1 (4.5)
Nebraska	15.5 (3.4)	19.1 (3.6)	21.7 (3.7)	26.8 (4.1)	28.0 (3.8)	29.5 (3.7)
Nevada	8.6 (1.9)	11.0 (2.1)	13.5 (2.3)	17.3 (2.7)	22.9 (2.9)	26.8 (3.0)
Clark County	*6.5 (2.1)	8.1 (2.2)	10.1 (2.4)	14.0 (3.0)	20.3 (3.4)	24.9 (3.5)
Rest of Nevada	14.2 (4.2)	18.6 (4.9)	23.1 (5.3)	26.5 (5.4)	29.9 (5.5)	32.2 (5.7)
New Hampshire	*4.4 (1.9)	*7.0 (2.4)	*7.3 (2.5)	*7.7 (2.6)	11.3 (2.9)	15.0 (3.3)
New Jersey	5.0 (1.2)	6.8 (1.4)	8.1 (1.5)	8.8 (1.6)	10.3 (1.5)	12.6 (1.6)
Essex County	*2.9 (1.9)	*6.4 (2.5)	11.6 (3.4)	14.5 (3.7)	21.5 (4.4)	26.9 (4.7)
Rest of New Jersey	5.1 (1.2)	6.9 (1.4)	8.0 (1.5)	8.6 (1.6)	9.9 (1.6)	12.1 (1.7)
New Mexico	21.7 (3.0)	23.6 (3.0)	26.2 (3.1)	28.9 (3.2)	34.5 (3.1)	38.9 (3.0)
Southern Counties ⁴	31.1 (5.1)	32.6 (5.2)	33.4 (5.3)	41.7 (5.8)	44.1 (5.6)	46.0 (5.6)
Rest of New Mexico	18.0 (3.6)	20.1 (3.5)	23.2 (3.7)	23.6 (3.7)	30.6 (3.7)	36.0 (3.5)
New York	6.5 (1.0)	7.2 (1.0)	8.5 (1.1)	9.9 (1.2)	12.5 (1.3)	16.6 (1.4)
City of New York Counties ⁵	7.0 (1.4)	8.6 (1.5)	10.0 (1.7)	12.1 (1.9)	14.6 (1.9)	19.1 (2.1)
Rest of New York	6.1 (1.4)	6.3 (1.4)	7.3 (1.5)	8.1 (1.6)	10.9 (1.7)	14.9 (1.9)
North Carolina	16.0 (2.2)	19.7 (2.3)	22.9 (2.4)	24.5 (2.5)	26.7 (2.4)	31.4 (2.3)
North Dakota	19.4 (4.7)	20.1 (4.6)	22.7 (4.9)	31.0 (5.8)	38.8 (5.9)	39.7 (5.9)
Ohio	12.8 (1.7)	16.0 (1.9)	17.2 (2.0)	18.7 (2.1)	24.3 (2.1)	28.8 (2.1)
Cuyahoga County	*8.0 (2.4)	12.1 (2.8)	13.3 (2.8)	15.1 (2.9)	22.3 (3.3)	28.3 (3.6)
Franklin County	12.3 (2.9)	17.7 (3.3)	15.4 (3.0)	14.0 (3.0)	20.8 (3.5)	25.7 (3.7)
Rest of Ohio	13.6 (2.2)	16.3 (2.3)	18.0 (2.5)	19.8 (2.6)	25.1 (2.6)	29.3 (2.6)
Oklahoma	21.9 (3.3)	26.9 (3.5)	26.3 (3.4)	27.2 (3.5)	31.7 (3.4)	35.2 (3.5)
Oregon	19.0 (3.1)	20.3 (3.2)	22.8 (3.4)	25.1 (3.5)	29.6 (3.5)	36.1 (3.6)
Pennsylvania	8.4 (1.4)	10.3 (1.4)	10.4 (1.5)	12.4 (1.6)	15.5 (1.6)	18.2 (1.7)
Allegheny County	*14.0 (4.4)	15.0 (4.2)	15.3 (4.2)	18.1 (4.6)	21.8 (4.8)	24.4 (5.1)
Philadelphia County	*7.0 (2.5)	11.5 (3.1)	13.4 (3.3)	13.8 (3.4)	17.8 (3.7)	23.1 (4.0)
Rest of Pennsylvania	7.9 (1.6)	9.5 (1.7)	9.3 (1.7)	11.5 (1.9)	14.4 (1.9)	16.7 (1.9)
Rhode Island	*5.8 (2.1)	*7.2 (2.4)	*6.4 (2.2)	8.9 (2.6)	13.0 (2.9)	15.8 (3.1)
South Carolina	18.6 (3.0)	20.6 (3.0)	21.5 (3.0)	23.4 (3.2)	28.1 (3.2)	33.6 (3.2)
South Dakota	*6.9 (2.6)	*8.8 (2.9)	*9.6 (3.1)	*10.5 (3.2)	15.1 (4.0)	20.5 (4.8)
Tennessee	21.8 (2.4)	25.6 (2.5)	28.1 (2.6)	29.2 (2.6)	30.8 (2.4)	36.3 (2.5)
Davidson County	23.0 (5.7)	25.6 (5.4)	27.0 (5.4)	28.4 (5.5)	35.2 (5.6)	38.9 (5.5)
Shelby County	26.7 (5.1)	28.1 (5.1)	28.5 (5.0)	30.5 (4.7)	34.1 (4.6)	39.0 (4.9)
Rest of Tennessee	20.5 (2.9)	25.0 (3.1)	28.2 (3.2)	29.0 (3.3)	29.5 (3.0)	35.4 (3.1)
Texas	21.4 (1.3)	25.8 (1.5)	27.5 (1.5)	29.2 (1.6)	33.3 (1.5)	36.5 (1.5)
Bexar County	23.3 (3.5)	22.2 (3.4)	27.0 (3.6)	35.6 (4.2)	38.4 (3.9)	37.8 (3.6)
Dallas County	24.1 (3.3)	28.6 (3.6)	33.1 (3.5)	34.2 (3.5)	37.5 (3.4)	42.8 (3.2)
El Paso County	24.2 (4.1)	26.0 (4.1)	26.7 (4.1)	32.9 (4.4)	35.7 (4.0)	36.7 (3.9)
Harris County	22.0 (2.5)	26.1 (2.7)	31.5 (3.0)	33.3 (3.2)	34.3 (2.8)	38.0 (2.6)
Rest of Texas	20.6 (1.7)	25.7 (1.9)	26.3 (2.0)	27.2 (2.1)	31.9 (1.9)	35.3 (1.9)
Utah	14.4 (2.8)	15.6 (2.9)	15.3 (2.8)	16.2 (2.8)	21.4 (3.1)	25.9 (3.4)
Vermont	*3.1 (2.0)	*6.0 (2.9)	*9.9 (3.8)	*10.5 (3.6)	16.1 (4.3)	19.8 (4.8)
Virginia	8.5 (1.7)	11.2 (1.8)	13.2 (2.0)	15.9 (2.2)	19.4 (2.2)	20.1 (2.1)
Washington	11.4 (1.6)	12.9 (1.6)	14.0 (1.7)	17.1 (1.9)	22.3 (2.0)	27.0 (2.1)
Eastern Counties ⁶	19.7 (3.5)	20.2 (3.4)	23.4 (3.5)	25.1 (3.3)	28.6 (3.5)	34.4 (4.0)
King County	10.1 (2.8)	11.3 (2.8)	12.4 (2.9)	16.5 (3.3)	20.2 (3.3)	22.9 (3.3)
Western Counties ⁷	*9.5 (2.9)	10.1 (2.9)	11.1 (3.1)	14.1 (3.3)	19.1 (3.6)	24.4 (4.1)
Rest of Washington	10.7 (2.7)	13.2 (2.9)	13.6 (2.9)	16.6 (3.3)	23.1 (3.7)	28.4 (3.8)
West Virginia	11.2 (3.0)	14.3 (3.3)	16.5 (3.4)	18.6 (3.6)	22.2 (3.8)	26.6 (3.9)
Wisconsin	13.2 (2.3)	13.9 (2.3)	16.0 (2.4)	19.0 (2.6)	22.8 (2.6)	28.6 (2.8)
Milwaukee County	13.6 (3.3)	15.9 (3.6)	18.0 (3.8)	20.4 (3.9)	26.7 (4.2)	35.3 (4.6)
Rest of Wisconsin	13.1 (2.7)	13.4 (2.7)	15.5 (2.7)	18.6 (3.0)	22.0 (3.1)	27.1 (3.2)
Wyoming	*9.9 (3.4)	*11.6 (3.5)	13.4 (3.8)	16.8 (4.0)	20.2 (4.4)	23.2 (4.5)

* Estimate has a relative standard error greater than 30% and does not meet National Center for Health Statistics standards for reliability or precision.

¹Includes Del Norte, Siskiyou, Modoc, Lassen, Shasta, Trinity, Humboldt, Mendocino, Tehama, Plumas, Butte, Glenn, Colusa, Lake, and Sierra.

²Includes Denver, Adams, Arapahoe, and Douglas.

³Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

⁴Includes Chaves, Lea, Eddy, Lincoln, Socorro, Catron, Sierra, Curry, Roosevelt, De Baca, Dona Ana, Otero, Luna, Grant, and Hidalgo.

⁵Includes Queens, Kings, Richmond, New York, and Bronx.

⁶Includes Asotin, Columbia, Garfield, Whitman, Adams, Walla Walla, Stevens, Ferry, Lincoln, Chelan, Douglas, Okanogan, Benton, Franklin, Grant, Kittitas, Klickitat, and Pend Oreille.

⁷Includes Kitsap, Whatcom, Thurston, Skagit, Island, Cowlitz, Mason, Clallam, Jefferson, Grays Harbor, Lewis, Pacific, San Juan, Skamania, and Wahkiakum.

Table 3. Modeled estimates (with standard errors) of the percent distribution of household telephone status for adults aged 18 years and over, by selected geographic areas: United States, July 2009–June 2010

Geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service ¹	Total
	Percent (standard error)						
Alabama	25.3 (1.6)	18.4 (1.4)	29.8 (2.0)	15.1 (1.6)	9.5 (1.3)	1.9	100.0
Jefferson County	24.3 (2.4)	18.9 (2.2)	32.8 (3.2)	14.4 (2.3)	8.7 (1.9)	0.9	100.0
Rest of Alabama	25.4 (1.8)	18.4 (1.6)	29.3 (2.3)	15.2 (1.8)	9.7 (1.4)	2.0	100.0
Alaska	19.9 (2.9)	20.4 (2.8)	22.2 (3.7)	19.7 (3.3)	16.3 (3.3)	1.6	100.0
Arizona	29.4 (1.5)	18.7 (1.3)	25.4 (1.8)	11.9 (1.3)	11.7 (1.3)	2.9	100.0
Maricopa County	30.3 (1.9)	20.3 (1.7)	27.4 (2.3)	9.9 (1.5)	8.9 (1.4)	3.1	100.0
Rest of Arizona	28.2 (2.5)	16.1 (1.9)	22.4 (2.7)	14.9 (2.3)	15.9 (2.4)	2.5	100.0
Arkansas	35.2 (2.3)	15.7 (1.7)	20.0 (2.3)	11.4 (1.8)	15.7 (2.0)	2.1	100.0
California	18.2 (0.6)	20.8 (0.6)	33.5 (0.7)	14.8 (0.6)	11.5 (0.5)	1.3	100.0
Alameda County	17.4 (1.9)	22.5 (2.0)	34.3 (2.9)	16.3 (2.2)	8.8 (1.7)	0.7	100.0
Fresno County	21.5 (2.2)	9.0 (1.5)	29.4 (3.0)	19.0 (2.5)	19.5 (2.5)	1.7	100.0
Los Angeles County	17.0 (1.0)	20.0 (1.1)	38.1 (1.4)	10.4 (0.9)	12.8 (1.0)	1.6	100.0
Northern Counties ²	18.1 (2.2)	14.9 (1.9)	21.8 (2.9)	23.7 (2.9)	20.3 (2.7)	1.3	100.0
San Bernardino County	18.1 (1.8)	20.4 (1.9)	38.0 (2.8)	12.2 (1.8)	10.2 (1.7)	1.1	100.0
San Diego County	18.4 (1.6)	18.8 (1.6)	34.3 (2.3)	16.9 (1.8)	10.7 (1.4)	0.9	100.0
Santa Clara County	17.7 (1.8)	24.2 (2.0)	34.5 (2.8)	13.1 (1.9)	9.8 (1.7)	0.6	100.0
Rest of California	18.8 (0.9)	22.1 (1.0)	30.9 (1.2)	16.5 (1.0)	10.4 (0.8)	1.2	100.0
Colorado	30.4 (1.6)	15.7 (1.2)	29.7 (1.9)	15.0 (1.5)	7.5 (1.1)	1.7	100.0
City of Denver Counties ³	33.6 (2.8)	16.0 (2.1)	27.1 (3.1)	14.7 (2.4)	7.3 (1.8)	1.3	100.0
Rest of Colorado	28.4 (1.9)	15.4 (1.5)	31.3 (2.4)	15.1 (1.8)	7.7 (1.3)	2.0	100.0
Connecticut	13.6 (1.4)	14.6 (1.4)	32.5 (2.3)	21.8 (2.0)	16.7 (1.8)	0.8	100.0
Delaware	16.5 (2.5)	17.7 (2.5)	28.4 (3.8)	27.6 (3.6)	8.5 (2.3)	1.2	100.0
District of Columbia	27.7 (3.4)	16.3 (2.8)	30.0 (4.0)	12.6 (2.8)	10.7 (2.7)	2.7	100.0
Florida	27.3 (1.0)	16.5 (0.8)	29.5 (1.1)	12.5 (0.8)	12.2 (0.8)	1.8	100.0
Dade County	27.1 (1.7)	19.7 (1.5)	32.0 (2.2)	7.4 (1.2)	11.9 (1.5)	1.9	100.0
Duval County	29.3 (2.6)	15.9 (2.0)	26.8 (3.0)	13.2 (2.2)	12.4 (2.2)	2.3	100.0
Orange County	34.1 (2.7)	17.5 (2.1)	28.9 (3.1)	8.9 (1.9)	8.6 (1.9)	2.0	100.0
Rest of Florida	26.7 (1.2)	15.9 (1.0)	29.3 (1.4)	13.7 (1.1)	12.6 (1.0)	1.8	100.0
Georgia	26.5 (1.4)	19.0 (1.2)	26.4 (1.6)	13.4 (1.2)	12.4 (1.2)	2.2	100.0
Fulton/DeKalb Counties	30.3 (2.5)	21.2 (2.2)	26.4 (2.9)	12.0 (2.1)	8.0 (1.8)	2.1	100.0
Rest of Georgia	25.7 (1.6)	18.4 (1.4)	26.4 (1.9)	13.7 (1.4)	13.4 (1.4)	2.3	100.0
Hawaii	21.8 (1.9)	17.5 (1.8)	32.4 (2.7)	18.1 (2.2)	8.3 (1.5)	1.8	100.0
Idaho	31.7 (2.6)	15.1 (1.9)	24.5 (2.9)	18.0 (2.5)	9.5 (1.9)	1.2	100.0
Illinois	24.4 (1.2)	17.6 (1.0)	30.4 (1.5)	16.8 (1.2)	9.3 (0.9)	1.5	100.0
Cook County	29.7 (1.7)	18.6 (1.4)	29.1 (2.0)	13.6 (1.5)	7.0 (1.1)	2.0	100.0
Madison/St. Clair Counties	31.5 (3.1)	14.8 (2.3)	28.3 (3.6)	12.9 (2.5)	10.8 (2.5)	1.7	100.0
Rest of Illinois	22.3 (1.5)	17.4 (1.3)	30.9 (1.9)	18.0 (1.6)	10.0 (1.2)	1.4	100.0
Indiana	25.2 (1.4)	15.1 (1.1)	28.5 (1.8)	14.2 (1.3)	15.0 (1.4)	2.1	100.0
Lake County	18.7 (3.1)	16.8 (2.8)	23.3 (4.1)	19.2 (3.7)	20.7 (4.1)	1.3	100.0
Marion County	33.5 (2.9)	16.1 (2.1)	25.2 (3.2)	16.2 (2.7)	7.2 (1.9)	1.9	100.0
Rest of Indiana	24.4 (1.7)	14.7 (1.4)	29.5 (2.1)	13.4 (1.6)	15.8 (1.7)	2.2	100.0
Iowa	29.2 (2.1)	16.5 (1.7)	29.1 (2.6)	16.9 (2.1)	7.0 (1.4)	1.3	100.0
Kansas	28.7 (1.8)	12.8 (1.3)	31.4 (2.2)	17.9 (1.8)	7.8 (1.2)	1.4	100.0
Johnson/Wyandotte Counties	21.2 (2.6)	13.0 (2.0)	43.3 (3.9)	12.7 (2.5)	8.6 (2.1)	1.2	100.0
Rest of Kansas	31.1 (2.2)	12.7 (1.6)	27.6 (2.6)	19.5 (2.3)	7.6 (1.5)	1.5	100.0
Kentucky	31.5 (2.1)	13.8 (1.5)	19.0 (2.2)	20.7 (2.2)	12.8 (1.8)	2.2	100.0
Louisiana	26.8 (1.8)	16.2 (1.5)	34.4 (2.4)	9.4 (1.4)	10.7 (1.5)	2.6	100.0
Maine	22.9 (2.4)	11.4 (1.7)	19.7 (2.7)	31.9 (3.1)	13.2 (2.3)	0.9	100.0
Maryland	18.4 (1.4)	21.2 (1.4)	29.6 (1.9)	20.4 (1.7)	9.2 (1.2)	1.2	100.0
Baltimore City	23.7 (2.8)	19.8 (2.6)	30.3 (3.7)	13.5 (2.6)	9.7 (2.4)	3.0	100.0
Rest of Maryland	17.7 (1.5)	21.4 (1.6)	29.5 (2.1)	21.3 (1.9)	9.2 (1.3)	0.9	100.0
Massachusetts	16.8 (1.2)	14.7 (1.2)	34.7 (1.9)	21.6 (1.6)	11.2 (1.2)	1.0	100.0
Suffolk County	25.2 (2.8)	9.3 (1.9)	30.3 (3.6)	15.5 (2.8)	18.1 (3.0)	1.7	100.0
Rest of Massachusetts	15.8 (1.3)	15.3 (1.3)	35.2 (2.0)	22.3 (1.8)	10.4 (1.3)	0.9	100.0
Michigan	29.2 (1.3)	15.3 (1.1)	24.7 (1.5)	19.9 (1.3)	9.1 (0.9)	1.8	100.0
Wayne County	34.9 (2.4)	13.3 (1.7)	24.4 (2.6)	15.5 (2.1)	10.0 (1.8)	2.0	100.0
Rest of Michigan	28.6 (1.4)	15.5 (1.1)	24.8 (1.6)	20.3 (1.5)	9.0 (1.0)	1.7	100.0
Minnesota	25.2 (1.4)	16.1 (1.2)	32.5 (1.8)	16.4 (1.4)	8.7 (1.1)	1.0	100.0
Twin Cities Counties ⁴	26.1 (1.8)	16.8 (1.5)	35.6 (2.4)	15.0 (1.8)	5.7 (1.1)	0.9	100.0
Rest of Minnesota	24.3 (2.1)	15.3 (1.7)	28.9 (2.7)	18.2 (2.3)	12.1 (1.9)	1.2	100.0
Mississippi	35.1 (2.0)	14.7 (1.4)	25.8 (2.1)	13.7 (1.7)	8.7 (1.3)	2.0	100.0

See footnotes at end of table.

Table 3. Modeled estimates (with standard errors) of the percent distribution of household telephone status for adults aged 18 years and over, by selected geographic areas: United States, July 2009–June 2010—Con.

Geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service ¹	Total
	Percent (standard error)						
Missouri	22.4 (1.5)	15.5 (1.3)	30.0 (2.0)	16.4 (1.6)	13.8 (1.5)	1.9	100.0
St. Louis County/City	26.9 (2.3)	12.4 (1.7)	30.4 (2.9)	17.4 (2.4)	11.1 (2.0)	1.9	100.0
Rest of Missouri	21.1 (1.8)	16.5 (1.6)	29.9 (2.4)	16.1 (1.9)	14.6 (1.8)	1.8	100.0
Montana	19.4 (2.6)	13.7 (2.1)	16.9 (2.9)	10.6 (2.3)	37.0 (3.8)	2.3	100.0
Nebraska	30.4 (2.4)	16.9 (1.9)	24.3 (2.7)	16.1 (2.2)	11.1 (1.9)	1.3	100.0
Nevada	24.2 (1.8)	14.6 (1.4)	17.7 (1.9)	9.7 (1.4)	32.0 (2.2)	1.8	100.0
Clark County	24.1 (2.1)	10.4 (1.5)	15.3 (2.1)	8.2 (1.6)	40.2 (2.8)	1.8	100.0
Rest of Nevada	24.6 (3.2)	25.1 (3.0)	23.7 (3.8)	13.5 (2.9)	11.3 (2.9)	1.8	100.0
New Hampshire	16.0 (2.0)	13.4 (1.8)	31.0 (3.1)	27.8 (3.0)	10.6 (2.0)	1.3	100.0
New Jersey	12.8 (1.0)	21.8 (1.3)	36.0 (1.8)	18.2 (1.4)	9.6 (1.0)	1.5	100.0
Essex County	26.5 (3.0)	13.3 (2.3)	30.0 (3.7)	*2.9 (1.4)	25.6 (3.6)	1.7	100.0
Rest of New Jersey	12.4 (1.1)	22.1 (1.3)	36.2 (1.8)	18.7 (1.5)	9.1 (1.1)	1.5	100.0
New Mexico	27.2 (1.8)	11.7 (1.3)	27.8 (2.2)	10.4 (1.5)	19.1 (1.9)	4.0	100.0
Southern Counties ⁵	29.3 (2.9)	9.3 (1.8)	25.6 (3.5)	10.5 (2.4)	22.6 (3.3)	2.6	100.0
Rest of New Mexico	26.3 (2.2)	12.5 (1.6)	28.6 (2.6)	10.3 (1.8)	17.7 (2.2)	4.5	100.0
New York	17.0 (0.9)	13.5 (0.8)	32.7 (1.3)	17.9 (1.1)	16.8 (1.0)	2.0	100.0
City of New York Counties ⁶	19.1 (1.3)	14.7 (1.1)	31.6 (1.7)	10.1 (1.1)	21.6 (1.5)	2.9	100.0
Rest of New York	15.4 (1.3)	12.6 (1.1)	33.6 (1.9)	23.8 (1.7)	13.2 (1.4)	1.4	100.0
North Carolina	25.2 (1.3)	16.1 (1.1)	24.6 (1.5)	19.9 (1.3)	12.4 (1.1)	1.8	100.0
North Dakota	32.3 (3.4)	9.5 (2.0)	26.1 (3.8)	12.5 (2.7)	18.3 (3.4)	1.3	100.0
Ohio	25.6 (1.1)	17.2 (1.0)	25.7 (1.3)	20.2 (1.2)	9.1 (0.8)	2.1	100.0
Cuyahoga County	21.4 (2.0)	18.7 (1.8)	23.8 (2.5)	20.2 (2.3)	14.6 (2.0)	1.3	100.0
Franklin County	30.6 (2.8)	17.3 (2.2)	28.9 (3.4)	16.9 (2.7)	*3.9 (1.4)	2.4	100.0
Rest of Ohio	25.6 (1.4)	17.0 (1.2)	25.6 (1.6)	20.6 (1.4)	9.0 (1.0)	2.2	100.0
Oklahoma	30.1 (2.0)	17.0 (1.6)	30.4 (2.5)	12.5 (1.7)	8.3 (1.4)	1.8	100.0
Oregon	30.6 (2.2)	15.0 (1.7)	18.1 (2.3)	22.4 (2.4)	12.2 (1.9)	1.7	100.0
Pennsylvania	16.5 (1.0)	16.5 (1.0)	32.0 (1.4)	23.4 (1.3)	10.4 (0.9)	1.3	100.0
Allegheny County	25.0 (3.1)	14.7 (2.5)	26.2 (3.9)	20.7 (3.4)	12.3 (2.9)	1.0	100.0
Philadelphia County	18.4 (2.2)	27.1 (2.5)	25.5 (3.0)	16.3 (2.5)	9.2 (1.9)	3.5	100.0
Rest of Pennsylvania	15.1 (1.1)	15.1 (1.1)	33.7 (1.7)	24.8 (1.5)	10.3 (1.1)	1.0	100.0
Rhode Island	12.8 (1.9)	16.8 (2.0)	27.8 (3.1)	23.2 (2.8)	17.8 (2.6)	1.5	100.0
South Carolina	25.8 (1.7)	18.5 (1.5)	26.5 (2.1)	15.9 (1.7)	11.0 (1.4)	2.3	100.0
South Dakota	15.6 (2.4)	9.3 (1.8)	14.3 (2.8)	8.6 (2.2)	50.8 (4.0)	1.3	100.0
Tennessee	27.9 (1.5)	17.1 (1.2)	27.6 (1.8)	16.3 (1.5)	9.4 (1.2)	1.8	100.0
Davidson County	37.5 (3.5)	15.4 (2.4)	22.6 (3.6)	15.8 (2.9)	*7.4 (2.2)	1.3	100.0
Shelby County	32.9 (2.9)	17.7 (2.3)	27.3 (3.4)	10.8 (2.3)	9.3 (2.2)	2.1	100.0
Rest of Tennessee	25.7 (1.8)	17.2 (1.5)	28.3 (2.2)	17.3 (1.8)	9.7 (1.4)	1.8	100.0
Texas	32.5 (1.0)	20.3 (0.8)	24.0 (1.0)	12.5 (0.8)	9.0 (0.6)	1.8	100.0
Bexar County	29.1 (2.2)	17.7 (1.8)	32.9 (2.7)	7.1 (1.5)	11.5 (1.8)	1.6	100.0
Dallas County	43.2 (2.3)	17.7 (1.7)	16.9 (2.1)	10.9 (1.7)	9.4 (1.6)	1.9	100.0
El Paso County	32.8 (2.7)	14.8 (2.0)	17.5 (2.7)	8.1 (1.9)	23.3 (2.9)	3.4	100.0
Harris County	32.4 (1.6)	22.1 (1.4)	19.5 (1.5)	14.4 (1.4)	9.6 (1.1)	1.9	100.0
Rest of Texas	31.3 (1.3)	20.9 (1.1)	25.0 (1.3)	13.1 (1.0)	8.0 (0.8)	1.7	100.0
Utah	24.4 (2.3)	13.9 (1.8)	35.3 (3.2)	17.2 (2.5)	7.7 (1.7)	1.4	100.0
Vermont	20.3 (2.8)	15.2 (2.4)	21.0 (3.5)	27.8 (3.8)	13.9 (3.0)	1.8	100.0
Virginia	21.2 (1.4)	17.9 (1.3)	30.5 (1.9)	18.6 (1.6)	10.0 (1.2)	1.8	100.0
Washington	26.4 (1.3)	17.2 (1.1)	26.7 (1.6)	18.7 (1.4)	9.6 (1.0)	1.4	100.0
Eastern Counties ⁷	28.6 (2.5)	19.8 (2.2)	20.7 (2.8)	15.0 (2.4)	14.3 (2.4)	1.6	100.0
King County	31.8 (2.3)	16.5 (1.8)	28.8 (2.7)	14.9 (2.1)	6.9 (1.5)	1.1	100.0
Western Counties ⁸	20.4 (2.3)	15.9 (2.0)	27.2 (3.1)	22.4 (2.8)	13.1 (2.3)	1.0	100.0
Rest of Washington	25.0 (2.5)	17.7 (2.1)	26.5 (3.1)	20.6 (2.8)	8.3 (1.9)	1.8	100.0
West Virginia	20.5 (2.3)	13.4 (1.9)	22.7 (2.9)	20.4 (2.7)	20.3 (2.7)	2.7	100.0
Wisconsin	25.3 (1.6)	10.4 (1.1)	25.1 (1.9)	20.8 (1.8)	17.2 (1.6)	1.3	100.0
Milwaukee County	30.7 (2.7)	5.0 (1.2)	32.6 (3.4)	9.6 (2.0)	21.0 (2.9)	1.1	100.0
Rest of Wisconsin	24.2 (1.8)	11.5 (1.3)	23.6 (2.2)	23.0 (2.1)	16.5 (1.8)	1.3	100.0
Wyoming	22.3 (2.6)	13.1 (2.0)	22.0 (3.2)	5.9 (1.7)	35.5 (3.6)	1.2	100.0

* Estimate has a relative standard error greater than 30% and does not meet National Center for Health Statistics standards for reliability or precision.

¹The proportion of adults living in households with no telephone service was not modeled. Other proportions were adjusted so that this estimate agreed with the 2009 American Community Survey estimate for this proportion.

²Includes Del Norte, Siskiyou, Modoc, Lassen, Shasta, Trinity, Humboldt, Mendocino, Tehama, Plumas, Butte, Glenn, Colusa, Lake, and Sierra.

³Includes Denver, Adams, Arapahoe, and Douglas.

⁴Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

⁵Includes Chaves, Lea, Eddy, Lincoln, Socorro, Catron, Sierra, Curry, Roosevelt, De Baca, Dona Ana, Otero, Luna, Grant, and Hidalgo.

⁶Includes Queens, Kings, Richmond, New York, and Bronx.

⁷Includes Asotin, Columbia, Garfield, Whitman, Adams, Walla Walla, Stevens, Ferry, Lincoln, Chelan, Douglas, Okanogan, Benton, Franklin, Grant, Kittitas, Klickitat, and Pend Oreille.

⁸Includes Kitsap, Whatcom, Thurston, Skagit, Island, Cowlitz, Mason, Clallam, Jefferson, Grays Harbor, Lewis, Pacific, San Juan, Skamania, and Wahkiakum.

Table 4. Modeled estimates (with standard errors) of the percent distribution of household telephone status by selected geographic areas, for children under age 18 years: United States, July 2009–June 2010

Geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service ¹	Total
	Percent (standard error)						
Alabama	30.9 (2.8)	21.7 (2.4)	30.3 (3.0)	10.9 (2.1)	*4.1 (1.4)	2.2	100.0
Jefferson County	33.1 (4.3)	24.6 (3.7)	34.2 (4.8)	*4.0 (2.0)	*3.3 (2.0)	0.8	100.0
Rest of Alabama	30.5 (3.1)	21.2 (2.6)	29.7 (3.4)	12.1 (2.5)	*4.2 (1.6)	2.4	100.0
Alaska	21.0 (4.9)	23.5 (4.6)	20.4 (5.5)	19.6 (5.4)	*14.6 (5.4)	0.8	100.0
Arizona	34.8 (2.4)	22.8 (2.0)	25.8 (2.4)	6.3 (1.3)	7.5 (1.5)	2.9	100.0
Maricopa County	35.5 (3.1)	24.3 (2.7)	26.3 (3.1)	*4.2 (1.4)	6.7 (1.9)	3.1	100.0
Rest of Arizona	33.6 (3.7)	20.2 (2.9)	25.0 (3.6)	9.9 (2.5)	9.0 (2.6)	2.5	100.0
Arkansas	46.2 (3.8)	21.8 (3.0)	16.8 (3.1)	*6.3 (2.1)	*6.1 (2.2)	2.7	100.0
California	19.7 (0.9)	23.0 (0.9)	34.4 (1.1)	11.4 (0.8)	10.1 (0.7)	1.4	100.0
Alameda County	15.4 (2.8)	24.5 (3.2)	39.8 (4.2)	13.7 (3.0)	*6.1 (2.2)	0.4	100.0
Fresno County	27.8 (3.8)	13.4 (2.7)	22.0 (3.9)	15.7 (3.4)	19.4 (4.1)	1.7	100.0
Los Angeles County	17.4 (1.5)	21.0 (1.6)	38.3 (2.1)	9.4 (1.3)	12.1 (1.4)	1.8	100.0
Northern Counties ²	22.9 (3.5)	17.5 (3.0)	24.2 (4.0)	17.8 (3.6)	16.4 (3.7)	1.3	100.0
San Bernardino County	22.5 (3.0)	23.0 (3.0)	33.5 (3.6)	11.7 (2.5)	7.9 (2.2)	1.4	100.0
San Diego County	18.6 (2.5)	18.5 (2.4)	37.4 (3.4)	15.2 (2.6)	9.5 (2.2)	0.8	100.0
Santa Clara County	17.5 (2.7)	21.3 (2.8)	44.8 (3.8)	7.5 (2.0)	7.9 (2.2)	1.0	100.0
Rest of California	20.7 (1.5)	25.9 (1.6)	31.5 (1.8)	11.4 (1.3)	9.1 (1.2)	1.5	100.0
Colorado	31.1 (2.6)	18.9 (2.0)	36.2 (2.9)	8.6 (1.6)	*3.9 (1.2)	1.4	100.0
City of Denver Counties ³	36.0 (4.7)	21.4 (3.6)	33.6 (5.1)	*4.7 (2.3)	*3.5 (2.2)	0.9	100.0
Rest of Colorado	27.5 (2.8)	17.0 (2.3)	38.1 (3.3)	11.4 (2.2)	*4.3 (1.5)	1.8	100.0
Connecticut	12.6 (2.2)	18.1 (2.5)	38.0 (3.6)	19.5 (2.9)	11.2 (2.5)	0.5	100.0
Delaware	20.1 (4.3)	23.3 (4.0)	33.7 (5.7)	15.7 (4.4)	*5.7 (3.2)	1.4	100.0
District of Columbia	30.3 (7.0)	22.8 (6.4)	35.2 (8.1)	*6.5 (4.0)	*3.0 (3.2)	2.1	100.0
Florida	34.2 (1.6)	21.6 (1.4)	29.7 (1.7)	5.4 (0.9)	6.9 (1.0)	2.2	100.0
Dade County	35.2 (3.0)	21.7 (2.5)	32.1 (3.2)	*3.3 (1.2)	*5.3 (1.6)	2.4	100.0
Duval County	32.0 (4.0)	19.5 (3.2)	27.9 (4.3)	*6.5 (2.4)	12.2 (3.4)	1.8	100.0
Orange County	39.5 (4.3)	21.2 (3.3)	30.4 (4.5)	*4.5 (2.0)	*2.9 (1.8)	1.6	100.0
Rest of Florida	33.7 (2.1)	21.8 (1.8)	29.3 (2.1)	5.8 (1.1)	7.1 (1.2)	2.2	100.0
Georgia	33.5 (2.3)	21.8 (1.9)	24.2 (2.2)	9.3 (1.6)	9.0 (1.6)	2.2	100.0
Fulton/DeKalb Counties	29.8 (4.0)	24.5 (3.5)	33.7 (4.6)	*3.2 (1.7)	*6.5 (2.7)	2.3	100.0
Rest of Georgia	34.2 (2.6)	21.2 (2.2)	22.3 (2.5)	10.5 (1.8)	9.5 (1.8)	2.2	100.0
Hawaii	23.6 (3.4)	28.0 (3.6)	35.8 (4.3)	*7.8 (2.4)	*2.6 (1.6)	2.2	100.0
Idaho	37.3 (3.9)	19.7 (3.0)	27.0 (3.9)	12.0 (2.9)	*2.9 (1.6)	1.2	100.0
Illinois	27.4 (2.1)	21.0 (1.9)	32.8 (2.3)	12.0 (1.7)	5.3 (1.2)	1.5	100.0
Cook County	29.0 (2.7)	19.0 (2.3)	33.5 (3.0)	9.1 (1.9)	6.9 (1.7)	2.5	100.0
Madison/St. Clair Counties	38.0 (5.3)	16.1 (3.5)	34.4 (5.7)	*8.1 (3.3)	*1.9 (1.8)	1.4	100.0
Rest of Illinois	26.3 (2.6)	21.9 (2.4)	32.5 (3.0)	13.1 (2.2)	5.0 (1.5)	1.2	100.0
Indiana	31.2 (2.4)	17.9 (1.9)	30.4 (2.7)	8.9 (1.6)	8.9 (1.8)	2.7	100.0
Lake County	35.1 (5.7)	21.3 (4.3)	25.1 (5.8)	*12.3 (4.4)	*5.3 (3.4)	0.8	100.0
Marion County	36.7 (4.7)	18.2 (3.4)	26.0 (4.8)	14.8 (3.9)	*3.5 (2.2)	0.7	100.0
Rest of Indiana	29.7 (2.9)	17.4 (2.3)	31.7 (3.2)	7.5 (1.9)	10.3 (2.3)	3.3	100.0
Iowa	29.8 (3.2)	19.4 (2.7)	37.5 (3.7)	8.4 (2.2)	*3.8 (1.6)	1.1	100.0
Kansas	34.8 (2.9)	14.2 (2.0)	36.2 (3.2)	10.4 (2.1)	*3.3 (1.3)	1.1	100.0
Johnson/Wyandotte Counties	23.0 (4.1)	14.4 (3.2)	53.9 (5.9)	*4.5 (2.3)	*3.5 (2.3)	0.7	100.0
Rest of Kansas	39.0 (3.7)	14.1 (2.5)	30.0 (3.8)	12.4 (2.7)	*3.2 (1.6)	1.3	100.0
Kentucky	34.9 (3.2)	19.7 (2.5)	18.0 (2.8)	17.2 (2.8)	7.2 (2.0)	2.9	100.0
Louisiana	34.4 (3.0)	19.7 (2.5)	32.6 (3.3)	5.7 (1.7)	*4.7 (1.6)	2.9	100.0
Maine	21.6 (3.8)	17.1 (3.2)	28.7 (4.7)	22.1 (4.4)	*9.8 (3.4)	0.6	100.0
Maryland	18.0 (2.2)	25.2 (2.4)	35.8 (3.1)	16.6 (2.4)	*3.3 (1.2)	1.1	100.0
Baltimore City	27.4 (4.5)	21.7 (4.0)	31.4 (5.3)	*9.2 (3.3)	*7.4 (3.4)	3.0	100.0
Rest of Maryland	16.8 (2.4)	25.6 (2.7)	36.3 (3.3)	17.5 (2.7)	*2.9 (1.2)	0.9	100.0
Massachusetts	15.1 (2.0)	18.2 (2.1)	43.7 (3.0)	14.9 (2.2)	7.4 (1.7)	0.7	100.0
Suffolk County	28.1 (5.7)	*12.5 (4.3)	35.7 (7.2)	*10.6 (4.6)	*12.6 (5.5)	0.5	100.0
Rest of Massachusetts	14.1 (2.1)	18.7 (2.2)	44.3 (3.2)	15.3 (2.4)	7.0 (1.7)	0.7	100.0
Michigan	35.6 (2.4)	19.2 (1.9)	25.2 (2.4)	13.2 (1.9)	5.2 (1.2)	1.7	100.0
Wayne County	42.9 (4.2)	15.5 (2.9)	22.1 (3.9)	*8.2 (2.5)	*9.4 (3.0)	2.0	100.0
Rest of Michigan	34.7 (2.6)	19.6 (2.1)	25.5 (2.6)	13.8 (2.1)	4.7 (1.3)	1.7	100.0
Minnesota	23.5 (2.3)	19.0 (2.0)	37.8 (2.9)	14.8 (2.1)	*4.1 (1.3)	0.8	100.0
Twin Cities Counties ⁴	21.0 (2.9)	17.1 (2.5)	40.1 (3.8)	16.9 (3.0)	*4.4 (1.7)	0.5	100.0
Rest of Minnesota	26.5 (3.6)	21.4 (3.1)	34.9 (4.3)	12.3 (3.0)	*3.8 (1.9)	1.2	100.0
Mississippi	41.9 (3.3)	19.2 (2.5)	24.1 (3.1)	9.2 (2.1)	*2.6 (1.2)	3.0	100.0

See footnotes at end of table.

Table 4. Modeled estimates (with standard errors) of the percent distribution of household telephone status by selected geographic areas, for children under age 18 years: United States, July 2009–June 2010—Con.

Geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service ¹	Total
Missouri	26.5 (2.7)	18.8 (2.3)	29.9 (3.0)	13.1 (2.2)	9.3 (2.1)	2.3	100.0
St. Louis County/City	22.9 (3.5)	17.3 (3.0)	36.0 (4.5)	16.5 (3.5)	*4.8 (2.2)	2.4	100.0
Rest of Missouri	27.5 (3.3)	19.3 (2.7)	28.2 (3.6)	12.2 (2.7)	10.6 (2.7)	2.3	100.0
Montana	35.1 (4.5)	18.1 (3.3)	11.4 (3.3)	*5.5 (2.4)	27.0 (5.2)	3.0	100.0
Nebraska	29.5 (3.7)	17.1 (2.8)	35.8 (4.3)	8.7 (2.5)	*7.8 (2.6)	1.1	100.0
Nevada	26.8 (3.0)	17.6 (2.3)	17.6 (2.8)	6.8 (1.9)	29.3 (3.7)	1.9	100.0
Clark County	24.9 (3.5)	13.8 (2.6)	14.3 (3.1)	*7.4 (2.3)	38.0 (4.8)	1.7	100.0
Rest of Nevada	32.2 (5.7)	28.1 (4.7)	26.7 (6.1)	*5.2 (3.0)	*5.5 (3.6)	2.4	100.0
New Hampshire	15.0 (3.3)	15.3 (3.0)	41.1 (5.0)	24.7 (4.5)	*2.3 (1.7)	1.5	100.0
New Jersey	12.6 (1.6)	25.4 (2.1)	42.7 (2.6)	12.2 (1.8)	5.6 (1.2)	1.5	100.0
Essex County	26.9 (4.7)	15.3 (3.7)	34.3 (5.5)	*0.0 (0.1)	22.2 (5.4)	1.3	100.0
Rest of New Jersey	12.1 (1.7)	25.8 (2.2)	43.0 (2.7)	12.7 (1.8)	5.0 (1.2)	1.5	100.0
New Mexico	38.9 (3.0)	18.6 (2.2)	24.2 (2.8)	5.5 (1.6)	8.9 (2.1)	4.0	100.0
Southern Counties ⁵	46.0 (5.6)	20.3 (4.0)	15.6 (4.4)	*3.6 (2.3)	*11.3 (4.4)	3.2	100.0
Rest of New Mexico	36.0 (3.5)	17.8 (2.7)	27.7 (3.5)	*6.3 (2.0)	7.9 (2.3)	4.4	100.0
New York	16.6 (1.4)	15.4 (1.3)	40.9 (2.0)	14.4 (1.5)	10.7 (1.3)	1.9	100.0
City of New York Counties ⁶	19.1 (2.1)	15.9 (1.9)	38.3 (2.8)	9.1 (1.7)	14.9 (2.1)	2.7	100.0
Rest of New York	14.9 (1.9)	15.0 (1.8)	42.9 (2.8)	18.4 (2.2)	7.5 (1.6)	1.4	100.0
North Carolina	31.4 (2.3)	21.2 (2.0)	26.6 (2.4)	12.0 (1.8)	6.8 (1.4)	2.0	100.0
North Dakota	39.7 (5.9)	12.4 (3.5)	37.0 (6.7)	*7.0 (3.4)	*3.4 (2.8)	0.6	100.0
Ohio	28.8 (2.1)	19.3 (1.8)	28.5 (2.3)	15.5 (1.8)	5.2 (1.2)	2.7	100.0
Cuyahoga County	28.3 (3.6)	22.2 (3.1)	21.4 (3.6)	22.2 (3.7)	5.3 (2.1)	0.6	100.0
Franklin County	25.7 (3.7)	19.4 (3.1)	38.1 (4.6)	13.4 (3.3)	*1.3 (1.2)	2.0	100.0
Rest of Ohio	29.3 (2.6)	18.9 (2.1)	28.2 (2.7)	14.8 (2.2)	5.7 (1.5)	3.1	100.0
Oklahoma	35.2 (3.5)	19.9 (2.8)	30.4 (3.7)	*6.1 (1.9)	*7.1 (2.3)	1.3	100.0
Oregon	36.1 (3.6)	16.1 (2.6)	23.1 (3.4)	16.6 (3.1)	*7.0 (2.2)	1.1	100.0
Pennsylvania	18.2 (1.7)	21.5 (1.7)	36.4 (2.2)	16.5 (1.8)	5.7 (1.1)	1.7	100.0
Allegheny County	24.4 (5.1)	22.5 (4.5)	34.0 (6.5)	*16.7 (5.1)	*1.4 (1.8)	1.0	100.0
Philadelphia County	23.1 (4.0)	32.1 (4.1)	20.6 (4.2)	16.2 (3.9)	*5.6 (2.6)	2.5	100.0
Rest of Pennsylvania	16.7 (1.9)	19.6 (2.0)	39.4 (2.6)	16.6 (2.1)	6.2 (1.4)	1.6	100.0
Rhode Island	15.8 (3.1)	20.1 (3.2)	30.6 (4.4)	18.3 (3.7)	13.9 (3.6)	1.3	100.0
South Carolina	33.6 (3.2)	24.3 (2.8)	21.8 (3.0)	9.4 (2.2)	7.9 (2.1)	3.0	100.0
South Dakota	20.5 (4.8)	14.2 (3.6)	20.8 (5.6)	*4.5 (2.8)	39.1 (8.0)	0.9	100.0
Tennessee	36.3 (2.5)	21.0 (2.0)	27.1 (2.5)	9.7 (1.7)	*4.0 (1.2)	1.9	100.0
Davidson County	38.9 (5.5)	25.4 (4.3)	29.8 (5.6)	*3.4 (2.2)	*1.6 (1.7)	0.9	100.0
Shelby County	39.0 (4.9)	23.1 (3.9)	27.6 (5.0)	*5.1 (2.5)	*3.5 (2.3)	1.6	100.0
Rest of Tennessee	35.4 (3.1)	20.0 (2.5)	26.6 (3.1)	11.6 (2.3)	*4.4 (1.5)	2.1	100.0
Texas	36.5 (1.5)	22.9 (1.3)	24.0 (1.4)	8.0 (0.9)	6.7 (0.8)	1.9	100.0
Bexar County	37.8 (3.6)	21.2 (2.8)	30.8 (3.7)	*3.9 (1.6)	*5.1 (1.9)	1.1	100.0
Dallas County	42.8 (3.2)	18.8 (2.5)	19.0 (2.8)	8.3 (2.0)	8.5 (2.1)	2.6	100.0
El Paso County	36.7 (3.9)	16.4 (2.9)	18.2 (3.4)	*5.4 (2.1)	18.8 (3.7)	4.4	100.0
Harris County	38.0 (2.6)	22.8 (2.2)	17.7 (2.1)	8.8 (1.6)	10.6 (1.8)	2.2	100.0
Rest of Texas	35.3 (1.9)	24.0 (1.7)	25.0 (1.8)	8.4 (1.2)	5.6 (1.0)	1.8	100.0
Utah	25.9 (3.4)	17.6 (2.8)	39.9 (4.3)	10.5 (2.7)	*5.2 (2.1)	0.8	100.0
Vermont	19.8 (4.8)	17.5 (4.0)	19.2 (5.2)	32.7 (6.4)	*9.9 (4.3)	1.0	100.0
Virginia	20.1 (2.1)	20.6 (2.0)	38.8 (2.7)	14.5 (2.0)	3.8 (1.1)	2.1	100.0
Washington	27.0 (2.1)	20.6 (1.8)	30.8 (2.4)	12.7 (1.7)	7.7 (1.5)	1.3	100.0
Eastern Counties ⁷	34.4 (4.0)	23.3 (3.3)	14.5 (3.2)	11.0 (2.9)	15.3 (3.6)	1.4	100.0
King County	22.9 (3.3)	18.1 (2.8)	40.4 (4.2)	12.6 (2.8)	*5.2 (2.0)	0.8	100.0
Western Counties ⁸	24.4 (4.1)	21.8 (3.6)	28.0 (4.8)	17.2 (4.1)	*7.3 (3.0)	1.3	100.0
Rest of Washington	28.4 (3.8)	20.7 (3.2)	31.0 (4.4)	11.1 (3.0)	*7.2 (2.7)	1.6	100.0
West Virginia	26.6 (3.9)	17.4 (3.1)	26.9 (4.4)	15.5 (3.7)	*10.8 (3.5)	2.7	100.0
Wisconsin	28.6 (2.8)	15.4 (2.1)	31.7 (3.1)	15.1 (2.5)	8.0 (1.9)	1.3	100.0
Milwaukee County	35.3 (4.6)	9.4 (2.6)	31.6 (4.9)	*10.1 (3.2)	*12.2 (3.7)	1.3	100.0
Rest of Wisconsin	27.1 (3.2)	16.7 (2.6)	31.7 (3.7)	16.2 (2.9)	*7.0 (2.1)	1.3	100.0
Wyoming	23.2 (4.5)	19.6 (3.8)	27.5 (5.4)	*6.2 (2.9)	22.8 (5.7)	0.7	100.0

0.0 Quantity more than zero but less than 0.05.

* Estimate has a relative standard error greater than 30% and does not meet National Center for Health Statistics standards for reliability or precision.

¹The proportion of children living in households with no telephone service was not modeled. Other proportions were adjusted so that this estimate agreed with the 2009 American Community Survey estimate for this proportion.²Includes Del Norte, Siskiyou, Modoc, Lassen, Shasta, Trinity, Humboldt, Mendocino, Tehama, Plumas, Butte, Glenn, Colusa, Lake, and Sierra.³Includes Denver, Adams, Arapahoe, and Douglas.⁴Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.⁵Includes Chaves, Lea, Eddy, Lincoln, Socorro, Catron, Sierra, Curry, Roosevelt, De Baca, Dona Ana, Otero, Luna, Grant, and Hidalgo.⁶Includes Queens, Kings, Richmond, New York, and Bronx.⁷Includes Asotin, Columbia, Garfield, Whitman, Adams, Walla Walla, Stevens, Ferry, Lincoln, Chelan, Douglas, Okanogan, Benton, Franklin, Grant, Kittitas, Klickitat, and Pend Oreille.⁸Includes Kitsap, Whatcom, Thurston, Skagit, Island, Cowlitz, Mason, Clallam, Jefferson, Grays Harbor, Lewis, Pacific, San Juan, Skamania, and Wahkiakum.

Technical Notes

Survey data sources

The estimates presented in this report are based on National Health Interview Survey (NHIS) data collected from January 2007 through June 2010 and on American Community Survey (ACS) data collected from 2006 through 2009. NHIS is a multipurpose health survey conducted by the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS). ACS is a multipurpose survey conducted by the U.S. Census Bureau to produce estimates of demographic, social, economic, and housing characteristics.

NHIS is an annual multistage probability household survey of a large sample of households drawn from the civilian noninstitutionalized household population of the United States. This face-to-face survey interview is administered by trained field representatives from the U.S. Census Bureau. NHIS interviews are conducted continuously throughout the year to collect information on health status, health-related behaviors, and health care utilization. The survey also includes information about household telephones and whether anyone in the household has a wireless telephone.

The sample for NHIS is stratified by state, which allows use of NHIS data in statistical models that produce state-level estimates. However, for most states, the limited number of sampling strata and small sample sizes preclude reliable direct state-level estimates. Household telephone status information was obtained for 75,408 persons in 2007, for 74,014 persons in 2008, for 88,374 persons in 2009, and for 46,014 persons in January–June 2010. Fewer than 0.5% of persons with completed NHIS family-level interviews had missing data for household telephone status.

NHIS was used to derive the direct estimates for each telephone service use category by age group (adult or child), small area, and 6-month period. These estimates were the dependent variables in each statistical model. Also, NHIS

was the source for the national estimates used for raking the model-based estimates for each telephone service use category by age group and year.

ACS is a multistage probability survey that provides data on households and group quarters. Here we use a subset of the full ACS sample—the civilian noninstitutionalized population—to represent a population similar to that sampled for NHIS. Data are collected continuously through a combination of mailed, telephone, and face-to-face interviews. ACS is both nationally and state-level representative and has included approximately 2 million housing units per year since 2006.

ACS data are released for calendar years rather than for 6-month periods. Moreover, 2010 ACS data will not be released until Fall 2011. Therefore, ACS data for 2006 were used in models for both 6-month periods of 2007 (i.e., January–June 2007 and July–December 2007). Similarly, ACS data for 2007 were used in models for both 6-month periods of 2008; ACS data for 2008 were used in models for both 6-month periods of 2009; and ACS data for 2009 were used in models for the 6-month period January–June 2010. Moreover, the 2008 and 2009 ACS were the sources for the proportion of adults or children living in households with any telephone service (landline or wireless). These ACS estimates were used as benchmarking totals when raking the model-based estimates.

NHIS and ACS sampling weights adjust for the probability of selection of each household, and they are adjusted for nonresponse. The results in this report are based on weighted estimates. *R* software (<http://www.r-project.org>) was used to derive the model-based estimates and standard errors. Design effects were included in the models to account for the complex survey designs.

Auxiliary data sources

The two-sample estimation model used in our previous report (6) incorporated auxiliary data on the number of wireless telephone

subscriptions per state. These data were obtained from the Federal Communications Commission's Automated Reporting Management Information System database. The major wireless telecommunications companies are no longer required to update this database with data for every state, and relevant data from 2006 and 2007 did not prove to be a significant covariate in any of the models.

Instead, the numbers of listed telephone lines for 2007–2010 were obtained from a consumer database compiled by infoUSA.com, Inc. This database is updated bimonthly with information from 37 sources, including postal delivery sequence files, National Change of Address lists, utility company records, and more than 4,000 White Pages directories. These data were available for each calendar year rather than each 6-month period. Therefore, annual data on listed telephone lines were used in models for both 6-month periods of that calendar year. We divided the count of listed telephone lines by the number of civilian noninstitutionalized persons.

Definitions

For each family contacted by NHIS, one adult family member is asked whether “you or anyone in your family has a working cellular telephone.” A family can be an individual or a group of two or more related persons living together in the same housing unit (a “household”). Thus, a family can consist of only one person, and more than one family can live in a household (including, for example, a household where there are multiple single-person families, as when unrelated roommates are living together).

To produce the statistics for this report, families are identified as “wireless families” if anyone in the family had a working cellular telephone at the time of interview. This person (or persons) could be a civilian adult, a member of the military, or a child. Households are identified as “wireless-only” if they include at least one wireless family and if there are no working landline telephones inside the

household. To determine whether there was a working landline telephone inside the household, survey respondents were asked if there was “at least one phone inside your home that is currently working and is not a cell phone.”

Household telephone status (rather than family telephone status) is used because most telephone surveys draw samples of households rather than families. Adults and children are identified as wireless-only if they live in a wireless-only household. Individual ownership or use of wireless telephones is not determined. A similar approach is used to identify adults and children living in landline-only households and in households with both landline and wireless telephones.

NHIS includes an additional question for persons living in families with both landline and wireless telephones. The respondent for the family is asked to consider all of the telephone calls his or her family receives and to report whether “all or almost all calls are received on cell phones, some are received on cell phones and some on regular phones, or very few or none are received on cell phones.” This question permits the identification of persons living in “wireless-mostly” households (defined as households with both landline and cellular telephones in which all families receive all or almost all calls on cell phones) and “landline-mostly” households (defined as households with both landline and cellular telephones in which all families receive all or almost all calls on landline telephones). “Dual-use” households are those with both landline and cellular telephones that are neither wireless-mostly or landline-mostly. That is, they receive some calls on cell phones and some on landline telephones.

Small-area model

This section describes in detail the small-area model and the derivation of the model-based estimates and standard errors for the proportion of adults living in households that were wireless-only (WO), wireless-mostly (WM), dual-use (DU), landline-mostly (LM), and

landline-only (LO). Derivation of the estimates and standard errors for the proportion of children living in households that are WO, WM, DU, LM, and LO is similar to the derivation given below and is not repeated here.

NHIS was used to obtain direct estimates of adults living in households that were WO, WM, DU, LO, and LM for the following 6-month periods: January–June 2007, July–December 2007, January–June 2008, July–December 2008, January–June 2009, July–December 2009, and January–June 2010. Direct estimates were derived for 93 small areas that form a mutually exclusive and exhaustive partition of the United States. Twenty-six of these small areas were states; others were selected counties, groups of counties, or the balance of the state population excluding the selected counties. No areas crossed state lines, and every location in the United States was part of one (and only one) of the 93 areas. See [Tables I and II](#) for a list of the small areas and the direct estimates of adults living in households that were WO or LO.

Typically when modeling proportions, the direct estimates are transformed using an arcsine transformation (9,13). The arcsine transformation preserves the bounds of 0 and 1 for proportions. In equation form, the transformed direct estimate for WO is

$$y_{it}^{WO} = 2\sin^{-1} \sqrt{z_{it}^{WO}},$$

where z_{it}^{WO} is the direct estimate for the proportion of adults living in households that are WO, i denotes the small areas ($i = 1, \dots, 93$), and t denotes the 6-month periods ($t = 1, \dots, 7$).

The small-area model is a cross-sectional and time-series model (9,10). The transformed direct estimate for small area i and 6-month period t is given by

$$y_{it}^{WO} = \mu_t + x_{it}'\beta + v_i + u_{it} + e_{it}, \quad (1)$$

where μ_t is the intercept term for 6-month period t ; x_{it} is a vector of covariates for small area i and 6-month period t ; and β is a vector that has the same number of entries as the number

of covariates in the vector x_{it} . The v_i values are random effects that capture the small-area-specific effect not captured by the regression component ($\mu_t + x_{it}'\beta$); u_{it} is a small-area-by-time random effect; and e_{it} is the sampling error associated with the transformed direct estimate. Standard distributional assumptions of normality with mean zero and unknown variance were assumed for the small-area-specific random effects, and the small-area-by-time effects were assumed to follow a first-order autoregressive model. The regression parameters (coefficients β) are assumed to be time-invariant, and it is only the intercept term and the random effects that capture the variation in the small-area parameters over time. The sampling errors were assumed to be normally distributed with mean zero and with sampling variance estimated using a Taylor series method.

The set of possible covariates were the demographic estimates from ACS and the number of listed telephone lines per capita. The demographic estimates were calculated from ACS for each of the 93 small areas. The dependent variables were calculated at the person level for each small area (e.g., proportion of adults in WO households), and demographic estimates were calculated at the person level for each small area (e.g., proportion of persons living in one-person households). Area definitions from ACS and NHIS matched precisely for all but five areas: Suffolk County (Boston, Massachusetts), Essex County (Newark, New Jersey), Wayne County (Detroit, Michigan), Cook County (Chicago, Illinois), and Harris County (Houston, Texas). Minor differences in these definitions were not expected to bias the model-based estimates. All the covariates were standardized (by subtracting the mean and then dividing by the standard deviation) prior to fitting the models.

Among the set of possible covariates, the best set of covariates was selected using an Akaike information criterion (AIC). In particular, AIC was used to select the best set of covariates for a person-level (i.e., total population) model, and then these selected covariates were used for the adult and

Table I. Direct estimates (with standard errors) of the percentage of adults aged 18 years and over living in wireless-only households, by selected geographic areas and time period: United States, January 2007–June 2010

Geographic area	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010
Percent (standard error)							
Alabama							
Jefferson County	7.2 (3.7)	23.7 (4.7)	12.5 (4.2)	15.3 (6.8)	9.6 (1.9)	33.7 (3.0)	21.6 (6.9)
Rest of Alabama	10.9 (5.1)	12.8 (3.8)	13.0 (3.4)	23.3 (2.9)	18.7 (5.4)	25.1 (4.0)	27.0 (7.0)
Alaska	2.3 (3.2)	21.2 (5.2)	14.8 (10.3)	12.3 (6.5)	14.5 (14.7)	15.7 (2.8)	16.8 (10.6)
Arizona							
Maricopa County	15.6 (3.7)	16.2 (3.2)	16.1 (3.8)	23.1 (5.9)	22.7 (4.9)	37.6 (7.9)	30.6 (1.7)
Rest of Arizona	17.9 (3.9)	22.1 (3.3)	22.3 (8.8)	22.3 (2.8)	33.0 (9.4)	25.1 (4.6)	24.0 (11.7)
Arkansas	17.1 (4.6)	25.1 (6.5)	18.6 (4.4)	26.8 (7.8)	44.4 (1.9)	28.4 (3.5)	38.6 (5.5)
California							
Alameda County	8.8 (3.4)	6.2 (1.4)	17.1 (3.7)	11.9 (7.9)	13.7 (4.2)	12.3 (2.1)	20.4 (3.7)
Fresno County	17.2 (5.7)	19.7 (2.3)	20.4 (7.7)	14.7 (2.6)	13.9 (2.7)	14.7 (4.0)	13.8 (1.0)
Los Angeles County	4.5 (0.9)	8.1 (1.1)	7.8 (1.6)	13.0 (2.7)	16.9 (1.6)	17.1 (1.4)	17.6 (0.9)
Northern Counties ¹	4.0 (2.0)	2.6 (2.8)	14.5 (3.3)	0.8 (0.6)	16.7 (2.9)	14.8 (8.6)	25.9 (9.3)
San Bernardino County	4.7 (2.2)	4.4 (2.0)	19.2 (10.1)	22.6 (2.4)	11.8 (4.0)	15.6 (3.5)	15.5 (1.3)
San Diego County	5.5 (2.5)	6.6 (2.3)	7.3 (2.5)	11.4 (1.9)	11.6 (4.3)	21.3 (5.6)	17.8 (3.0)
Santa Clara County	7.5 (2.2)	7.2 (3.8)	9.8 (3.5)	5.7 (2.7)	13.2 (3.1)	19.9 (4.5)	20.5 (3.7)
Rest of California	8.3 (1.2)	10.9 (1.1)	11.9 (1.3)	17.3 (2.3)	16.1 (2.0)	15.6 (1.3)	22.4 (1.5)
Colorado							
City of Denver Counties ²	27.9 (8.0)	40.2 (3.9)	36.8 (8.2)	24.1 (10.0)	38.9 (3.7)	22.8 (3.1)	40.9 (6.8)
Rest of Colorado	12.4 (0.7)	17.9 (5.3)	20.0 (1.7)	27.5 (9.5)	24.7 (1.5)	32.8 (4.4)	24.9 (2.5)
Connecticut	7.8 (2.9)	2.7 (1.3)	11.4 (5.1)	5.5 (2.2)	10.3 (3.4)	12.8 (2.8)	15.1 (2.8)
Delaware	2.3 (2.2)	7.3 (3.0)	0.6 (0.7)	26.6 (21.5)	10.0 (0.1)	18.0 (9.1)	12.5 (3.3)
District of Columbia	30.4 (3.6)	17.9 (9.9)	11.5 (5.6)	–	13.8 (5.3)	13.0 (3.4)	36.0 (7.5)
Florida							
Dade County	13.7 (2.8)	8.7 (1.2)	26.0 (5.6)	21.8 (5.4)	30.4 (3.0)	22.3 (0.5)	32.0 (6.0)
Duval County	13.7 (2.9)	42.6 (16.8)	18.3 (6.5)	21.1 (1.4)	29.9 (1.5)	33.9 (8.6)	22.3 (1.6)
Orange County	19.9 (8.9)	19.2 (4.5)	27.9 (5.4)	25.9 (10.6)	25.0 (5.2)	39.1 (6.0)	31.8 (0.9)
Rest of Florida	12.6 (2.2)	16.9 (2.2)	17.6 (2.3)	23.0 (2.5)	21.9 (4.0)	25.8 (2.0)	27.9 (3.3)
Georgia							
Fulton/DeKalb Counties	16.8 (2.4)	8.8 (1.6)	24.8 (2.5)	27.6 (6.7)	18.4 (6.4)	23.3 (1.4)	41.7 (3.3)
Rest of Georgia	10.8 (2.5)	17.7 (2.8)	13.1 (2.1)	23.4 (3.4)	16.8 (2.9)	26.0 (2.3)	26.3 (2.7)
Hawaii	12.6 (8.2)	4.6 (4.7)	10.8 (2.5)	9.0 (0.6)	19.4 (5.5)	29.2 (4.6)	25.9 (4.3)
Idaho	26.4 (4.2)	15.4 (7.5)	22.9 (5.9)	15.9 (7.2)	48.1 (4.5)	27.3 (8.6)	34.6 (5.9)
Illinois							
Cook County	14.8 (3.2)	15.6 (1.6)	16.5 (2.5)	33.7 (7.6)	27.4 (6.0)	30.0 (4.2)	28.2 (3.0)
Madison/St. Clair Counties	6.6 (8.6)	19.1 (0.9)	28.8 (10.0)	30.9 (7.0)	1.5 (2.0)	27.5 (0.8)	45.0 (6.9)
Rest of Illinois	14.2 (3.1)	17.4 (3.7)	13.8 (3.0)	21.0 (3.5)	15.2 (4.0)	21.8 (2.1)	20.9 (2.5)
Indiana							
Lake County	2.7 (2.6)	26.2 (3.8)	18.2 (11.9)	–	–	9.7 (3.3)	25.4 (10.8)
Marion County	20.6 (3.7)	18.1 (8.9)	18.2 (1.9)	26.9 (13.2)	30.1 (9.9)	44.8 (5.3)	23.2 (5.0)
Rest of Indiana	14.5 (1.9)	10.5 (4.5)	11.2 (3.3)	14.9 (2.0)	26.6 (6.6)	23.7 (2.6)	26.8 (4.4)
Iowa	24.1 (6.9)	18.3 (5.5)	28.9 (7.5)	27.5 (8.8)	19.6 (5.9)	25.3 (5.7)	30.1 (5.0)
Kansas							
Johnson/Wyandotte Counties	3.4 (2.1)	0.6 (0.8)	5.6 (3.0)	15.3 (3.5)	14.5 (3.9)	16.0 (2.3)	38.2 (7.1)
Rest of Kansas	17.8 (3.3)	20.3 (2.3)	32.8 (4.4)	19.2 (10.1)	30.2 (5.3)	30.9 (5.5)	31.7 (9.8)
Kentucky	21.7 (5.0)	23.7 (6.0)	23.8 (5.8)	28.3 (4.4)	27.4 (5.8)	34.4 (4.1)	29.4 (6.2)
Louisiana	14.0 (3.9)	12.7 (4.3)	17.5 (2.7)	13.7 (2.2)	22.7 (2.4)	26.7 (3.8)	28.7 (4.6)
Maine	19.1 (8.7)	11.7 (2.6)	20.1 (5.4)	17.7 (9.1)	30.9 (8.3)	20.9 (9.9)	17.1 (5.7)
Maryland							
Baltimore City	18.4 (8.6)	6.7 (3.8)	11.1 (3.1)	6.9 (6.1)	35.7 (5.5)	24.2 (2.5)	17.4 (2.3)
Rest of Maryland	6.7 (2.4)	11.1 (3.6)	8.9 (2.1)	11.6 (2.2)	16.9 (5.2)	15.9 (2.2)	19.9 (3.7)
Massachusetts							
Suffolk County	15.2 (2.0)	27.7 (7.9)	35.8 (6.5)	7.0 (5.3)	19.5 (5.8)	19.7 (9.7)	26.9 (5.2)
Rest of Massachusetts	9.2 (2.9)	4.9 (1.9)	9.7 (2.6)	8.2 (1.3)	16.6 (5.4)	16.7 (1.4)	16.2 (3.1)
Michigan							
Wayne County	16.1 (2.5)	18.7 (2.8)	29.3 (6.5)	34.2 (3.4)	26.8 (4.7)	25.3 (9.5)	45.2 (4.6)
Rest of Michigan	15.6 (3.8)	18.1 (3.4)	19.0 (3.4)	23.9 (2.3)	21.5 (2.8)	31.5 (2.6)	26.6 (2.0)
Minnesota							
Twin Cities Counties ³	15.5 (2.6)	23.1 (8.6)	24.7 (4.8)	26.5 (2.8)	24.1 (1.5)	26.6 (4.3)	20.7 (2.5)
Rest of Minnesota	13.8 (3.2)	11.9 (3.8)	23.4 (3.4)	14.8 (0.6)	21.8 (7.9)	24.4 (4.7)	25.5 (7.8)
Mississippi	17.0 (6.5)	20.6 (5.0)	31.8 (6.5)	26.7 (3.6)	29.9 (5.7)	34.8 (2.4)	39.3 (4.6)

See footnotes at end of table.

Table I. Direct estimates (with standard errors) of the percentage of adults aged 18 years and over living in wireless-only households, by selected geographic areas and time period: United States, January 2007–June 2010—Con.

Geographic area	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010
	Percent (standard error)						
Missouri							
St. Louis County/City	13.5 (3.0)	14.9 (6.5)	31.2 (13.1)	12.6 (4.8)	31.1 (1.2)	25.9 (1.9)	20.5 (7.0)
Rest of Missouri	6.5 (1.4)	6.9 (3.1)	10.5 (1.4)	11.9 (2.6)	14.2 (2.7)	26.0 (4.9)	18.4 (3.0)
Montana	3.0 (0.6)	3.1 (0.2)	8.1 (2.9)	26.3 (4.7)	16.7 (1.2)	23.5 (0.5)	18.4 (2.2)
Nebraska	14.7 (4.0)	28.4 (5.2)	13.7 (3.7)	28.4 (11.1)	43.1 (5.6)	25.3 (3.4)	31.6 (7.3)
Nevada							
Clark County	11.8 (0.8)	4.1 (3.0)	10.6 (3.9)	9.5 (3.3)	18.5 (2.9)	26.9 (4.7)	25.0 (0.4)
Rest of Nevada	7.7 (4.3)	6.3 (1.0)	5.8 (5.8)	20.2 (1.9)	21.6 (5.0)	33.7 (11.1)	8.5 (5.7)
New Hampshire	3.4 (2.8)	16.4 (2.2)	6.7 (4.0)	15.3 (3.9)	17.7 (7.7)	9.5 (1.1)	19.2 (5.2)
New Jersey							
Essex County	5.7 (2.0)	2.3 (2.4)	11.1 (5.5)	19.7 (9.1)	22.4 (14.2)	28.8 (9.6)	27.2 (4.4)
Rest of New Jersey	6.0 (0.7)	6.1 (2.0)	7.3 (1.8)	8.1 (1.9)	10.2 (0.8)	11.4 (1.4)	11.6 (2.1)
New Mexico							
Southern Counties ⁴	15.6 (3.0)	35.3 (6.1)	10.2 (2.3)	15.7 (1.4)	42.7 (7.6)	21.8 (4.7)	31.5 (6.6)
Rest of New Mexico	24.1 (5.5)	6.3 (1.8)	22.3 (13.2)	14.8 (7.3)	31.6 (8.7)	28.7 (5.7)	21.9 (3.1)
New York							
City of New York Counties ⁵	11.1 (1.3)	8.8 (1.4)	10.1 (1.7)	14.1 (2.6)	14.8 (1.4)	17.6 (2.2)	20.3 (1.2)
Rest of New York	11.6 (3.4)	15.8 (5.8)	10.1 (1.8)	10.5 (2.5)	12.7 (3.4)	12.7 (2.3)	14.4 (2.9)
North Carolina	15.1 (2.5)	14.3 (2.3)	21.1 (2.7)	19.5 (4.7)	23.4 (2.6)	22.3 (2.3)	25.9 (2.1)
North Dakota	18.0 (9.9)	8.9 (5.1)	14.7 (8.2)	13.8 (2.0)	38.3 (16.5)	39.4 (14.5)	48.5 (12.5)
Ohio							
Cuyahoga County	6.0 (1.5)	7.9 (3.2)	8.2 (2.0)	17.3 (3.7)	21.0 (4.9)	18.7 (2.4)	21.7 (3.6)
Franklin County	23.9 (12.6)	8.3 (0.5)	26.0 (8.7)	17.1 (3.5)	30.0 (4.7)	22.0 (5.3)	40.3 (3.9)
Rest of Ohio	13.6 (2.8)	15.5 (2.7)	18.8 (2.5)	16.2 (4.2)	22.5 (2.7)	22.9 (2.1)	28.6 (2.6)
Oklahoma	18.7 (2.4)	35.2 (6.2)	24.0 (2.9)	18.9 (9.1)	23.0 (6.7)	32.9 (3.9)	26.2 (4.3)
Oregon	19.1 (5.7)	16.0 (4.7)	18.0 (5.3)	24.3 (10.2)	20.8 (6.6)	35.7 (8.0)	31.4 (7.5)
Pennsylvania							
Allegheny County	3.2 (1.8)	37.6 (7.9)	9.4 (5.2)	51.3 (36.5)	23.5 (0.9)	32.3 (7.8)	22.5 (3.7)
Philadelphia County	4.6 (2.2)	14.0 (4.8)	7.7 (6.2)	6.3 (2.7)	14.4 (5.3)	19.3 (6.7)	19.3 (3.7)
Rest of Pennsylvania	8.0 (2.1)	8.2 (1.7)	9.8 (1.5)	11.6 (2.3)	14.4 (2.8)	14.2 (2.4)	15.0 (1.5)
Rhode Island	1.6 (0.4)	6.9 (4.4)	1.2 (0.9)	5.4 (3.2)	26.8 (6.3)	13.6 (3.0)	11.0 (3.5)
South Carolina	18.1 (3.4)	18.7 (3.8)	17.6 (2.1)	22.4 (3.9)	15.3 (3.2)	21.1 (4.1)	29.7 (5.8)
South Dakota	10.7 (1.2)	3.3 (2.4)	10.4 (0.0)	10.8 (5.3)	2.9 (0.7)	14.6 (4.7)	5.4 (0.9)
Tennessee							
Davidson County	23.5 (14.6)	27.2 (5.7)	34.5 (2.8)	13.4 (7.4)	24.8 (5.6)	51.5 (8.1)	28.8 (2.1)
Shelby County	24.0 (10.1)	41.5 (13.3)	15.5 (2.6)	27.1 (10.0)	36.1 (9.5)	42.9 (20.9)	26.6 (1.6)
Rest of Tennessee	14.8 (3.2)	19.6 (4.3)	18.9 (2.5)	20.8 (5.9)	25.2 (4.4)	17.6 (2.9)	34.4 (4.8)
Texas							
Bexar County	21.3 (10.7)	13.3 (5.5)	18.3 (4.1)	17.6 (2.1)	33.3 (7.1)	23.3 (4.2)	34.7 (1.7)
Dallas County	28.3 (9.6)	20.1 (4.1)	40.7 (5.9)	27.4 (5.5)	41.6 (8.0)	40.1 (3.4)	51.1 (2.5)
El Paso County	19.0 (5.0)	4.1 (2.4)	15.5 (1.9)	30.9 (10.2)	42.3 (6.3)	24.6 (1.8)	50.1 (3.3)
Harris County	19.1 (2.3)	19.0 (2.2)	28.5 (2.5)	28.5 (6.8)	31.3 (2.1)	28.9 (3.4)	32.9 (3.0)
Rest of Texas	16.1 (1.8)	20.7 (2.2)	23.5 (1.9)	22.3 (2.6)	28.5 (2.0)	29.0 (1.9)	34.1 (1.4)
Utah	21.1 (2.8)	23.4 (4.4)	15.2 (3.7)	16.9 (1.4)	17.7 (2.1)	21.7 (3.8)	23.5 (2.8)
Vermont	3.7 (2.6)	2.9 (2.1)	5.6 (3.7)	16.6 (6.2)	22.0 (5.8)	34.2 (8.8)	18.0 (0.1)
Virginia	10.9 (1.7)	11.2 (3.3)	16.8 (3.4)	17.6 (5.0)	27.3 (6.5)	15.7 (2.3)	22.6 (3.0)
Washington							
Eastern Counties ⁶	30.9 (7.1)	16.7 (3.1)	18.0 (1.3)	14.3 (1.9)	25.2 (1.7)	12.2 (1.9)	49.2 (14.3)
King County	16.0 (6.5)	30.8 (9.0)	26.0 (6.0)	33.8 (7.0)	20.5 (8.0)	30.2 (7.0)	34.9 (5.9)
Western Counties ⁷	7.1 (3.9)	15.2 (5.1)	1.0 (0.9)	15.6 (3.6)	15.8 (4.0)	23.0 (7.2)	18.3 (2.8)
Rest of Washington	6.0 (4.4)	17.0 (4.6)	14.3 (2.8)	10.4 (1.9)	20.4 (7.4)	25.4 (8.1)	28.9 (6.0)
West Virginia	11.1 (8.0)	7.9 (5.7)	17.6 (3.4)	8.3 (1.1)	10.8 (4.0)	20.0 (4.6)	16.0 (3.7)
Wisconsin							
Milwaukee County	12.0 (1.7)	23.2 (6.4)	18.1 (8.9)	14.8 (9.3)	19.7 (6.8)	32.8 (3.9)	32.1 (5.3)
Rest of Wisconsin	11.2 (3.0)	18.7 (4.6)	8.5 (2.3)	22.7 (6.1)	16.1 (3.1)	23.7 (4.5)	26.4 (3.2)
Wyoming	9.6 (4.5)	21.0 (1.8)	13.1 (7.9)	29.3 (4.3)	29.6 (4.6)	4.5 (1.1)	14.0 (2.6)

– Quantity zero.

¹Includes Del Norte, Siskiyou, Modoc, Lassen, Shasta, Trinity, Humboldt, Mendocino, Tehama, Plumas, Butte, Glenn, Colusa, Lake, and Sierra.²Includes Denver, Adams, Arapahoe, and Douglas.³Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.⁴Includes Chaves, Lea, Eddy, Lincoln, Socorro, Catron, Sierra, Curry, Roosevelt, De Baca, Dona Ana, Otero, Luna, Grant, and Hidalgo.⁵Includes Queens, Kings, Richmond, New York, and Bronx.⁶Includes Asotin, Columbia, Garfield, Whitman, Adams, Walla Walla, Stevens, Ferry, Lincoln, Chelan, Douglas, Okanogan, Benton, Franklin, Grant, Kittitas, Klickitat, and Pend Oreille.⁷Includes Kitsap, Whatcom, Thurston, Skagit, Island, Cowlitz, Mason, Clallam, Jefferson, Grays Harbor, Lewis, Pacific, San Juan, Skamania, and Wahkiakum.

Table II. Direct estimates (with standard errors) of the percentage of adults aged 18 years and over living in landline-only households, by selected geographic areas and time period: United States, January 2007–June 2010

Geographic area	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010
Percent (standard error)							
Alabama							
Jefferson County	21.3 (10.3)	20.1 (3.9)	8.1 (1.5)	11.0 (6.9)	22.1 (2.0)	6.8 (3.0)	9.0 (2.2)
Rest of Alabama	13.5 (1.9)	22.1 (3.7)	13.8 (4.1)	14.6 (1.6)	5.1 (1.5)	14.5 (1.9)	6.5 (1.6)
Alaska	21.6 (8.3)	14.0 (6.2)	27.0 (6.5)	19.0 (11.9)	17.7 (6.6)	16.8 (4.4)	20.1 (5.8)
Arizona							
Maricopa County	16.5 (3.2)	20.6 (1.1)	17.7 (2.8)	17.3 (4.2)	10.6 (3.1)	9.7 (3.1)	6.2 (1.9)
Rest of Arizona	18.4 (0.8)	19.2 (5.3)	14.2 (3.0)	13.3 (1.4)	9.7 (2.4)	14.8 (3.9)	25.8 (12.7)
Arkansas	20.8 (4.1)	30.8 (5.2)	15.1 (3.9)	13.8 (2.5)	14.4 (2.5)	22.4 (4.5)	12.5 (1.5)
California							
Alameda County	20.6 (4.8)	11.9 (1.7)	14.0 (2.4)	5.2 (4.9)	11.7 (3.5)	6.8 (1.0)	11.6 (4.6)
Fresno County	28.2 (3.7)	38.7 (6.1)	21.6 (5.4)	25.3 (5.8)	15.4 (0.9)	17.9 (2.6)	26.5 (2.0)
Los Angeles County	23.8 (2.9)	16.8 (2.3)	14.6 (2.1)	19.2 (2.5)	11.3 (2.1)	13.8 (1.6)	12.4 (0.8)
Northern Counties ¹	31.7 (9.0)	37.9 (1.8)	40.4 (5.3)	25.6 (1.2)	27.1 (3.0)	20.1 (2.2)	12.1 (3.1)
San Bernardino County	28.2 (5.7)	22.0 (5.6)	31.3 (8.4)	11.6 (2.4)	8.4 (1.6)	9.0 (1.6)	10.2 (3.3)
San Diego County	16.4 (2.2)	11.3 (1.8)	13.8 (4.9)	11.7 (3.4)	17.0 (2.1)	10.2 (1.9)	11.7 (0.9)
Santa Clara County	12.8 (1.9)	9.5 (3.3)	13.8 (5.1)	19.2 (6.8)	14.8 (4.8)	7.2 (1.9)	12.1 (2.8)
Rest of California	22.6 (2.3)	17.6 (1.5)	18.5 (1.8)	10.0 (1.5)	13.4 (2.0)	10.8 (1.4)	10.1 (1.1)
Colorado							
City of Denver Counties ²	19.9 (2.0)	16.4 (4.9)	11.1 (5.2)	9.5 (3.4)	8.8 (7.2)	7.6 (4.6)	4.5 (1.3)
Rest of Colorado	15.3 (3.2)	14.5 (2.4)	10.7 (1.9)	8.6 (2.9)	3.5 (1.2)	8.2 (1.7)	9.2 (2.2)
Connecticut	17.8 (5.5)	23.0 (2.7)	16.7 (3.9)	18.9 (4.8)	22.8 (3.3)	18.5 (2.0)	17.2 (1.1)
Delaware	11.9 (5.2)	31.8 (4.3)	10.6 (3.0)	9.3 (2.2)	–	15.9 (8.6)	9.1 (6.9)
District of Columbia	16.8 (1.3)	22.3 (18.0)	8.5 (6.6)	19.2 (0.3)	11.7 (5.4)	18.6 (3.2)	5.6 (4.6)
Florida							
Dade County	15.2 (3.0)	12.8 (1.7)	21.9 (4.5)	11.6 (3.5)	7.1 (2.7)	15.0 (3.0)	10.9 (1.0)
Duval County	20.6 (6.9)	11.1 (4.6)	11.7 (9.7)	18.4 (5.4)	36.2 (2.9)	13.4 (3.6)	8.4 (0.4)
Orange County	20.2 (9.5)	14.0 (13.3)	10.7 (2.4)	4.2 (4.9)	11.7 (1.4)	7.0 (1.9)	13.0 (3.9)
Rest of Florida	21.8 (2.0)	13.8 (1.7)	18.0 (2.8)	10.5 (1.6)	14.4 (2.2)	14.2 (1.5)	11.9 (1.7)
Georgia							
Fulton/DeKalb Counties	11.4 (2.1)	6.0 (2.6)	16.3 (2.7)	8.9 (3.5)	16.2 (4.7)	11.2 (3.1)	7.4 (0.6)
Rest of Georgia	27.7 (4.6)	19.0 (5.6)	23.3 (4.8)	14.0 (1.1)	11.4 (2.8)	13.0 (1.8)	15.0 (3.4)
Hawaii	23.7 (4.0)	18.8 (3.7)	18.3 (1.0)	13.3 (5.8)	13.3 (2.3)	5.7 (1.5)	5.8 (2.6)
Idaho	10.1 (6.1)	23.1 (1.6)	10.3 (1.8)	10.6 (6.1)	10.0 (4.8)	14.0 (3.0)	6.9 (1.6)
Illinois							
Cook County	16.3 (2.2)	12.0 (3.4)	15.2 (2.1)	7.6 (1.9)	8.1 (1.8)	7.8 (2.2)	7.0 (0.8)
Madison/St. Clair Counties	27.2 (4.5)	18.9 (9.5)	7.6 (5.4)	7.3 (3.6)	12.7 (4.6)	11.7 (4.3)	10.2 (3.8)
Rest of Illinois	14.4 (3.9)	22.5 (5.4)	18.9 (4.0)	12.6 (2.0)	13.1 (2.2)	9.9 (2.6)	10.0 (1.5)
Indiana							
Lake County	15.6 (6.1)	55.9 (3.9)	22.4 (5.9)	72.6 (22.6)	23.7 (9.2)	11.2 (8.0)	42.3 (9.7)
Marion County	20.7 (2.7)	15.2 (1.6)	12.1 (2.5)	13.8 (5.5)	18.2 (8.7)	4.1 (1.6)	2.5 (0.6)
Rest of Indiana	32.3 (3.0)	26.8 (4.3)	35.6 (3.1)	20.8 (2.2)	10.5 (2.8)	18.5 (3.6)	12.4 (3.2)
Iowa	20.6 (5.3)	10.8 (4.3)	7.9 (1.5)	7.8 (1.3)	9.2 (2.7)	7.4 (2.2)	5.9 (1.1)
Kansas							
Johnson/Wyandotte Counties	12.0 (12.2)	21.0 (6.3)	36.6 (4.1)	7.1 (3.7)	18.9 (4.6)	10.4 (3.7)	1.6 (1.2)
Rest of Kansas	16.1 (3.8)	8.7 (3.0)	10.5 (2.4)	6.7 (0.3)	13.0 (2.7)	8.9 (3.3)	5.7 (0.8)
Kentucky	29.8 (6.7)	18.4 (5.8)	16.7 (3.2)	17.0 (5.8)	12.1 (3.6)	12.1 (4.4)	13.8 (3.2)
Louisiana	16.5 (2.6)	17.3 (4.6)	11.5 (4.2)	11.7 (2.2)	6.7 (1.8)	10.7 (2.0)	14.2 (5.3)
Maine	29.4 (6.8)	18.4 (4.5)	15.4 (2.5)	7.1 (4.2)	19.2 (6.9)	12.3 (3.9)	15.0 (2.4)
Maryland							
Baltimore City	22.7 (5.1)	14.9 (8.6)	23.7 (4.8)	34.3 (14.9)	15.2 (2.0)	5.8 (2.3)	6.8 (3.5)
Rest of Maryland	15.0 (2.7)	20.4 (4.0)	11.7 (1.6)	10.8 (1.3)	6.2 (1.8)	12.0 (4.4)	8.5 (2.7)
Massachusetts							
Suffolk County	26.9 (0.8)	43.9 (2.6)	12.6 (2.1)	40.3 (2.9)	15.0 (7.4)	26.9 (6.1)	14.5 (4.0)
Rest of Massachusetts	20.2 (2.5)	18.4 (1.9)	15.0 (3.2)	20.5 (3.7)	10.6 (2.3)	10.7 (1.9)	9.8 (1.4)
Michigan							
Wayne County	20.1 (5.8)	17.1 (5.0)	15.3 (4.2)	15.9 (2.1)	10.7 (6.7)	11.2 (2.7)	8.6 (2.7)
Rest of Michigan	17.8 (1.9)	14.8 (2.9)	13.1 (1.4)	11.4 (1.6)	13.1 (2.4)	11.0 (1.8)	7.0 (1.1)
Minnesota							
Twin Cities Counties ³	11.4 (1.6)	11.1 (1.6)	6.5 (1.3)	11.3 (4.9)	5.3 (1.0)	9.9 (2.1)	3.6 (0.6)
Rest of Minnesota	17.2 (3.3)	24.3 (10.5)	14.2 (3.9)	11.6 (4.3)	9.0 (4.2)	13.1 (1.2)	13.4 (3.0)
Mississippi	26.2 (7.7)	35.0 (4.8)	12.0 (3.6)	16.6 (2.5)	16.1 (3.7)	7.1 (1.9)	7.4 (1.9)

See footnotes at end of table.

Table II. Direct estimates (with standard errors) of the percentage of adults aged 18 years and over living in landline-only households, by selected geographic areas and time period: United States, January 2007–June 2010—Con.

Geographic area	Jan–Jun 2007	Jul–Dec 2007	Jan–Jun 2008	Jul–Dec 2008	Jan–Jun 2009	Jul–Dec 2009	Jan–Jun 2010
Percent (standard error)							
Missouri							
St. Louis County/City	19.2 (7.9)	13.0 (8.6)	22.9 (11.3)	19.9 (8.1)	12.4 (4.4)	9.6 (3.2)	11.4 (1.9)
Rest of Missouri	34.5 (6.8)	27.8 (5.6)	33.6 (6.9)	25.2 (3.6)	15.9 (4.6)	12.9 (3.9)	11.0 (2.8)
Montana	55.5 (12.5)	60.4 (3.9)	60.7 (17.3)	40.7 (14.0)	21.0 (16.7)	42.4 (8.2)	45.0 (18.3)
Nebraska	17.0 (7.6)	6.5 (3.8)	10.7 (2.9)	21.3 (10.5)	7.2 (1.5)	19.4 (3.2)	7.5 (4.9)
Nevada							
Clark County	58.8 (5.8)	56.3 (9.2)	58.1 (10.1)	51.2 (16.9)	69.2 (1.8)	47.2 (5.9)	22.6 (0.6)
Rest of Nevada	46.8 (18.2)	17.0 (5.1)	25.1 (10.5)	15.7 (8.5)	8.3 (1.9)	2.9 (2.6)	15.0 (2.8)
New Hampshire	29.4 (1.1)	26.8 (6.1)	9.1 (3.4)	14.3 (7.6)	10.4 (4.6)	14.4 (4.6)	6.3 (0.9)
New Jersey							
Essex County	74.3 (9.6)	56.5 (16.1)	79.9 (5.3)	31.7 (6.1)	22.2 (10.0)	19.4 (4.9)	12.2 (5.8)
Rest of New Jersey	12.8 (2.7)	12.7 (1.5)	10.8 (1.7)	11.3 (2.2)	10.5 (1.3)	10.1 (1.6)	9.1 (2.3)
New Mexico							
Southern Counties ⁴	47.5 (10.8)	4.7 (2.9)	38.3 (2.9)	24.4 (1.9)	21.2 (4.6)	27.4 (0.7)	23.6 (6.4)
Rest of New Mexico	24.3 (1.9)	24.7 (2.2)	23.4 (12.6)	21.1 (5.3)	35.7 (14.1)	10.6 (1.7)	22.2 (2.4)
New York							
City of New York Counties ⁵	32.8 (5.0)	29.9 (4.5)	32.8 (4.6)	25.9 (2.6)	25.3 (2.2)	23.5 (3.1)	18.8 (1.2)
Rest of New York	22.8 (2.4)	24.1 (3.3)	24.1 (2.5)	26.7 (5.6)	27.1 (2.8)	11.0 (1.5)	12.4 (1.8)
North Carolina	22.9 (2.3)	21.7 (3.8)	18.7 (1.6)	16.9 (2.2)	15.4 (1.5)	11.6 (2.0)	13.4 (1.7)
North Dakota	26.6 (18.0)	37.3 (14.6)	26.8 (11.4)	34.4 (0.6)	13.4 (11.0)	14.9 (5.2)	17.6 (0.8)
Ohio							
Cuyahoga County	22.6 (3.8)	14.3 (4.2)	27.7 (12.2)	20.3 (5.4)	16.1 (4.2)	15.8 (2.6)	11.7 (2.4)
Franklin County	14.0 (5.6)	6.7 (5.5)	1.1 (0.9)	7.3 (6.9)	16.1 (2.2)	8.4 (2.2)	–
Rest of Ohio	23.2 (2.0)	19.1 (1.8)	14.1 (2.2)	11.4 (1.2)	11.7 (1.7)	12.0 (1.9)	5.8 (1.1)
Oklahoma	12.3 (1.7)	8.0 (1.7)	16.8 (2.6)	16.7 (4.7)	11.7 (2.1)	9.5 (2.9)	6.7 (1.9)
Oregon	17.0 (3.0)	19.1 (1.1)	20.2 (5.4)	10.9 (4.0)	14.9 (3.5)	10.3 (0.6)	14.1 (3.3)
Pennsylvania							
Allegheny County	42.1 (5.5)	11.5 (1.2)	16.8 (2.5)	5.1 (3.2)	17.6 (4.1)	9.4 (1.8)	18.4 (5.9)
Philadelphia County	16.4 (5.1)	36.3 (3.3)	26.5 (8.6)	18.2 (3.4)	6.7 (2.8)	9.0 (4.8)	5.3 (1.6)
Rest of Pennsylvania	19.5 (1.8)	22.5 (3.8)	16.7 (2.3)	21.0 (4.2)	12.7 (1.5)	11.2 (2.3)	8.7 (1.4)
Rhode Island	15.4 (2.1)	21.9 (9.0)	23.1 (7.7)	28.6 (1.9)	8.8 (4.1)	19.5 (6.6)	22.9 (4.0)
South Carolina	17.4 (3.7)	21.7 (2.9)	13.9 (2.5)	8.2 (4.3)	10.1 (1.6)	14.9 (4.2)	10.1 (2.2)
South Dakota	79.8 (4.7)	78.8 (7.4)	84.4 (0.1)	59.1 (14.0)	77.3 (4.9)	53.8 (10.8)	29.0 (16.5)
Tennessee							
Davidson County	7.4 (4.1)	6.7 (3.4)	6.3 (2.7)	35.3 (22.8)	9.5 (2.9)	5.3 (4.5)	7.4 (2.8)
Shelby County	15.5 (3.0)	12.5 (5.9)	21.9 (6.7)	10.2 (2.4)	22.6 (0.7)	2.6 (2.3)	9.5 (1.0)
Rest of Tennessee	18.6 (5.4)	19.1 (4.0)	13.1 (3.2)	16.5 (3.3)	12.4 (3.1)	10.9 (2.0)	8.1 (3.2)
Texas							
Bexar County	22.3 (1.7)	7.8 (4.9)	10.8 (1.1)	9.1 (4.2)	20.4 (1.0)	11.6 (2.9)	11.9 (1.4)
Dallas County	13.0 (3.4)	9.9 (3.5)	5.5 (1.5)	11.9 (4.7)	8.3 (2.6)	15.1 (3.2)	8.0 (2.9)
El Paso County	9.3 (4.8)	29.6 (9.8)	21.2 (3.0)	29.0 (17.0)	23.4 (2.6)	26.9 (9.2)	29.3 (1.6)
Harris County	13.4 (1.5)	13.6 (1.4)	14.9 (2.9)	13.4 (4.3)	2.8 (1.1)	11.7 (1.6)	10.0 (1.3)
Rest of Texas	13.9 (2.1)	13.8 (2.4)	12.9 (1.4)	11.2 (2.1)	9.2 (2.1)	9.1 (1.0)	6.8 (1.1)
Utah	9.7 (3.3)	8.8 (2.6)	14.0 (4.1)	9.8 (4.1)	7.0 (0.3)	6.5 (1.5)	12.9 (2.0)
Vermont	20.6 (1.4)	22.3 (4.8)	19.4 (9.3)	5.1 (0.6)	3.9 (2.8)	23.0 (7.2)	14.0 (1.5)
Virginia	17.5 (3.4)	17.3 (2.5)	19.5 (3.7)	14.8 (3.0)	13.2 (2.6)	11.4 (1.5)	8.6 (1.0)
Washington							
Eastern Counties ⁶	40.7 (8.5)	10.2 (0.2)	11.7 (5.5)	11.3 (1.9)	13.2 (2.0)	11.0 (2.7)	17.2 (4.4)
King County	13.1 (2.1)	9.7 (3.4)	5.3 (1.6)	15.9 (1.7)	10.4 (3.1)	9.1 (3.0)	5.1 (1.0)
Western Counties ⁷	20.5 (2.6)	6.2 (5.2)	16.0 (3.8)	20.8 (3.4)	11.1 (6.8)	12.8 (4.7)	13.2 (2.2)
Rest of Washington	8.6 (1.3)	8.9 (5.0)	18.9 (3.5)	9.1 (5.4)	12.4 (3.2)	5.8 (3.6)	7.5 (2.9)
West Virginia	33.9 (6.2)	29.2 (6.3)	21.9 (3.6)	23.4 (9.9)	19.4 (3.2)	28.5 (13.1)	13.5 (6.9)
Wisconsin							
Milwaukee County	37.7 (2.5)	23.3 (12.3)	28.8 (6.1)	14.8 (4.9)	35.1 (6.5)	14.8 (3.1)	25.2 (5.3)
Rest of Wisconsin	34.0 (5.0)	32.5 (6.3)	27.9 (5.0)	16.2 (6.5)	14.9 (1.9)	16.3 (2.1)	15.8 (2.2)
Wyoming	27.7 (4.4)	45.5 (1.0)	48.3 (6.1)	29.7 (0.6)	29.6 (3.1)	55.0 (14.0)	39.0 (2.1)

– Quantity zero.

¹Includes Del Norte, Siskiyou, Modoc, Lassen, Shasta, Trinity, Humboldt, Mendocino, Tehama, Plumas, Butte, Glenn, Colusa, Lake, and Sierra.²Includes Denver, Adams, Arapahoe, and Douglas.³Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.⁴Includes Chaves, Lea, Eddy, Lincoln, Socorro, Catron, Sierra, Curry, Roosevelt, De Baca, Dona Ana, Otero, Luna, Grant, and Hidalgo.⁵Includes Queens, Kings, Richmond, New York, and Bronx.⁶Includes Asotin, Columbia, Garfield, Whitman, Adams, Walla Walla, Stevens, Ferry, Lincoln, Chelan, Douglas, Okanogan, Benton, Franklin, Grant, Kittitas, Klickitat, and Pend Oreille.⁷Includes Kitsap, Whatcom, Thurston, Skagit, Island, Cowlitz, Mason, Clallam, Jefferson, Grays Harbor, Lewis, Pacific, San Juan, Skamania, and Wahkiakum.

child models. Model selection using AIC involves selecting the model that minimizes twice the difference between the number of parameters in the model and the maximized value of the log likelihood function. Because this criterion was used to select covariates for the person-level model, in some of the adult or child models some of the covariates were not statistically significant at conventional alpha levels. However, for ease of interpretation, we used the same set of covariates for the adult and child models. Tables III and IV present the best set of covariates for each of the phone categories.

Model-based estimate for the proportion of adults in wireless-only households

The parameter of interest in the model given by Eqn 1 is the true but unknown value for the arcsine-transformed proportion of adults living in wireless-only households for a given small area and 6-month period, and it can be expressed as the sum of a small-area/6-month-period mean, the small-area effect, and the small-area-by-time effect.

The model-based estimate used in estimating the proportion of adults living in wireless-only households was derived using a best linear unbiased prediction (BLUP) approach (see reference 10, p. 516). Because the BLUP depends on unknown variance components, an empirical model-based estimate, referred to as the empirical BLUP (EBLUP), is obtained by substituting the maximum likelihood estimate for the unknown variance components in the BLUP.

The 12-month estimates for the arcsine-transformed proportion of adults living in wireless-only households was obtained by a simple average of the consecutive 6-month-period estimates. The 12-month model-based estimate for the proportion of adults living in wireless-only households in each small area was then obtained by back-transforming the previously mentioned annual estimate. A more direct approach could have been to model the annual

12-month direct estimates instead of modeling 6-month direct estimates, but model-based moving averages were desired for overlapping 12-month periods to smooth out short-term fluctuations and highlight longer-term trends. Hence, we needed to combine successive 6-month model-based estimates.

The model given by Eqn 1 was also fitted for the proportion of adults living in WM, DU, LM, and LO households. Similar to fitting the model for adults living in WO households, the best set of covariates was selected for each of the models for WM, DU, LM, and LO, and the unknown parameters in each model were estimated by the maximum likelihood estimator. Table V presents R^2 statistics that reflect the relative fit of each model. These statistics estimate the proportion of variability in the data that is accounted for by the statistical models, including the covariates and random effects (14). Models for adults fit better than models for children, perhaps because covariates were initially selected for a person-level (i.e., total population) model that included more adults than children. The WO and LO models fit better than the WM, DU, and LM models, perhaps because decisions to own only a wireless or landline telephone are more strongly related to the covariates than are decisions to use one or the other when both are owned.

The 12-month model-based estimate for the proportion of adults living in households that are WM, DU, LM, or LO was derived using methodology similar to the derivation of the 12-month estimate for adults living in households that are WO. Next, the set of 12-month estimates for WO, WM, DU, LM, and LO for every small area and time period were raked such that for the corresponding time period, the raked estimates agreed with the NHIS national-level direct estimate for WO, WM, DU, LM, and LO. Also, for each small area, the raked estimates for January–December 2007, July 2007–June 2008, January–December 2008, and July 2008–June 2009 agreed with the 2008 ACS estimate for the proportion of adults living in households

with a telephone (landline or cell phone), and the raked estimates for January–December 2009 and July 2009–June 2010 agreed with the 2009 ACS estimate for the proportion of adults living in households with a telephone. These raked estimates are the final published small-area-level estimates.

For states with multiple small areas, in order to derive state-level estimates for proportion of adults in WO, WM, DU, LM, and LO households, the raked small-area-level estimates were appropriately weighted by the number of adults. For example, if a state consists of two small areas, the state-level proportion of adults in WO households was obtained by multiplying the number of adults in each small area and the raked small-area estimate for the proportion of adults in WO households, then summing this product across the two small areas, and finally dividing the sum by the state-level total for number of adults. These estimates are the final published state-level estimates.

Variance estimation

An estimate for the variance of the EBLUP for each small area/6-month period was derived using equation 5.2 of reference 10 (p. 518). However, because the final model-based estimate involved combining successive 6-month periods, back-transformation, and raking, the initial estimate for the variance was then adjusted to take into account each of these steps.

We recognize that Eqn 1 could have been extended to a multivariate model that would include all telephone service use categories (WO, WM, DU, LM, and LO) and age groups. This approach would have produced more-efficient estimates by using the dependence of the random effects. That is, the multivariate model would have produced estimates with smaller standard errors compared with the estimates produced using Eqn 1, but this approach would have been computationally more demanding.

Table III. Estimated regression coefficients (with standard errors) for models predicting the percentage of adults living in households with various telephone statuses: United States, January 2007–June 2010

Predictor ¹	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only
Intercept		Coefficient (standard error)			
Jan–Jun 2007	0.685 (0.022)	0.713 (0.018)	1.169 (0.018)	0.859 (0.018)	0.967 (0.022)
Jul–Dec 2007	0.724 (0.022)	0.752 (0.019)	1.148 (0.019)	0.828 (0.019)	0.920 (0.023)
Jan–Jun 2008	0.780 (0.022)	0.767 (0.018)	1.121 (0.018)	0.829 (0.017)	0.889 (0.022)
Jul–Dec 2008	0.835 (0.023)	0.792 (0.019)	1.116 (0.019)	0.843 (0.018)	0.819 (0.023)
Jan–Jun 2009	0.916 (0.022)	0.838 (0.019)	1.117 (0.019)	0.799 (0.018)	0.768 (0.023)
Jul–Dec 2009	0.962 (0.021)	0.845 (0.018)	1.114 (0.017)	0.785 (0.016)	0.751 (0.022)
Jan–Jun 2010	0.998 (0.024)	0.850 (0.018)	1.087 (0.020)	0.772 (0.018)	0.704 (0.023)
Household size					
One person	0.098 (0.027)	...†	–0.062 (0.021)	...†	...†
Two persons	0.149 (0.022)	...	–0.086 (0.022)	...	...
Three persons	0.034 (0.011)	...	...†	...	...
Four persons . . . . .	...†	0.053 (0.013)	...	...	–0.038 (0.015)
Five persons . . . . .	...	0.054 (0.015)	...	...	...
Six persons . . . . .	...	...	...	0.052 (0.020)	...
Race or ethnicity of household members					
All are Hispanic . . . . .	...	...	...	–0.079 (0.017)	...
All are black . . . . .	...	...	0.050 (0.019)	...	–0.125 (0.036)
All are white . . . . .	...	–0.075 (0.017)	...	...	...
Age of household members ²					
All adults are under 31 . . . . .	...	...	0.054 (0.017)	–0.114 (0.029)	...
At least one adult is 65 or over	–0.081 (0.018)	...	0.063 (0.022)	...	...
Education of most educated adult household member ³					
Less than high school diploma . . . . .	...	...	...	0.063 (0.018)	...
Some college . . . . .	...	...	–0.039 (0.018)	...	...
College degree or higher . . . . .	...	...	...	...	–0.113 (0.026)
Employment status of household members ⁴					
All adults are attending school . . . . .	...	...	...	0.045 (0.017)	–0.042 (0.019)
Household composition ⁵					
One or more adults and one or more children . . . . .	...	–0.140 (0.040)	...	...	...
One or more adults and one or more children (squared) . . . . .	...	–0.044 (0.013)	...	...	...
Two or more adults and one or more children	0.129 (0.032)	0.111 (0.039)	...	0.122 (0.037)	...
Two or more adults and one or more children (squared) . . . . .	...	0.032 (0.014)	...	...	...
No children . . . . .	...	...	...	0.142 (0.035)	...
All adults are male . . . . .	...	0.051 (0.019)	...	...	...
All adults are female . . . . .	...	...	...	...	0.112 (0.041)
Home ownership					
Rented . . . . .	...	–0.078 (0.019)	...	–0.132 (0.024)	0.062 (0.024)
Rented and all household members are under age 31 . . . . .	...	...	...	0.100 (0.031)	...
Poverty status of individuals ⁶					
Less than 200% of poverty (all persons) . . . . .	...	...	–0.405 (0.144)	...	...
200%–399% of poverty (all persons) . . . . .	...	...	–0.170 (0.078)	...	...
Less than 200% of poverty (adults, aged 18 and over)	0.068 (0.013)	...	0.300 (0.131)	...	...
200%–399% of poverty (adults, aged 18 and over) . . . . .	...	...	0.143 (0.075)	...	...
Less than 200% of poverty (children, aged 0–17 years) . . . . .	...	0.046 (0.018)	...	...	–0.099 (0.031)
Listed telephones					
Listed telephone numbers per capita	–0.054 (0.014)	...	...	...	...

See footnotes at end of table.

Table III. Estimated regression coefficients (with standard errors) for models predicting the percentage of adults living in households with various telephone statuses: United States, January 2007–June 2010—Con.

Predictor ¹	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only
Census region ⁷	Coefficient (standard error)				
Northeast . . . . .	...	...	...	0.133 (0.035)	...
Midwest	0.099 (0.031)	-0.065 (0.026)	...	...	...
South	0.081 (0.031)	...	...	...	...

... Category not applicable.

† Here, not applicable means the coefficient was not statistically significant in the person-level model, and therefore the covariate was not retained in this model.

¹Except for the intercepts, poverty status, census region, and listed telephones, all predictors refer to the proportion of persons in the geographic area who live in households with the specified characteristic. The linear terms of all covariates were considered. The square term of a covariate was considered only if the linear term was also included in the model. A square term of a covariate is indicated by (squared).

²The proportion of persons living in households where all adults were between ages 31 and 44, and the proportion of persons living in households where all adults were between ages 45 and 64, were not statistically significant in any model.

³The proportion of persons living in households where the education of the most educated adult was a high school diploma was not statistically significant in any model.

⁴The proportion of persons living in households where at least one adult was employed was not statistically significant in any model.

⁵The proportion of persons living in households with one adult and one or more children, the proportion of persons living in households with no related adults, the proportion of persons living in households with related adults, and the proportion of persons living in households with more than one family in the household were not statistically significant in any model.

⁶The proportion of persons at or above 400% of poverty, the proportion of adults at or above 400% of poverty, the proportion of children at 200%–399% of poverty, and the proportion of children at or above 400% of poverty were not statistically significant in any model.

⁷Indicator for the West region was not statistically significant in any model.

Comparison of state-level adult wireless-only estimates for 2007

The modeling approach used in this report is distinct from that used in the previous report (6). In the previous report, a two-sample strategy was used to estimate the prevalence of adults living in wireless-only households for the year 2007. That approach involved using the national sample of NHIS data to fit a multinomial logistic regression model with state-level fixed effects. Then, the fitted NHIS model was applied to the CPS microdata to obtain predicted probabilities for each person in the data set. The average predicted probability within the state was used for the model-based estimate of adults living in wireless-only households. Next, NHIS was used to derive state-level direct estimates for adults living in wireless-only households. Finally, a blended estimate was derived by combining the state-level, model-based estimate and the state-level direct estimate. The two sets of estimates were combined based on the relative precision of each estimate.

The approach used in the present report involves modeling the direct estimates for each small-area/6-month period instead of modeling individual observations. The approach used in the previous report involved blending the model-based estimate with the direct

estimate; the final estimate under that approach is no longer consistent under the model. The current approach derives an “optimal” estimate under a model, which also automatically is a weighted combination of the direct estimate, a regression estimate, and “adjusted direct estimates.” This approach allows the model-based estimate to incorporate the direct estimate for the small-area/6-month period of interest, and also, the adjusted direct estimates for other 6-month periods. That is, the current approach allows for “borrowing strength” across time. In comparison, using the modeling approach in the previous report, there is no obvious method for blending the direct estimate, the model-based estimate, and the direct estimates for 6-month periods other than the 6-month period of interest, because the direct estimates for other 6-month periods need to be “adjusted” prior to blending. (An adjustment is necessary to ensure that the direct estimates for other 6-month periods are unbiased for the small-area/6-month period of interest.)

Also, the approach used in the current report allows for the production of accurate standard errors when combining estimates for consecutive 6-month periods and when combining estimates for multiple small areas in a state. Using the approach in the previous report, we would not be able to produce accurate standard errors when combining estimates because the

correlation among the blended estimates cannot be estimated.

We compared the modeled state-level estimates and confidence intervals of the percentage of adults living in wireless-only households for January–December 2007 using the current model (Table 1) and the previous report’s model (6). The estimates differ (data not shown); however, the largest differences are associated with estimates that have wide confidence intervals. For example, the 2007 adult wireless-only estimate for the District of Columbia changed from 25.4% (using the approach in the previous report) to 13.8%, but the confidence interval associated with the estimate using the current model is significantly narrower. There are several states (e.g., Iowa, Kentucky, Nebraska, New Mexico, North Dakota, Oklahoma) for which significantly narrower confidence intervals are obtained using the current model. In part, this occurs because the process of borrowing strength across time helps to moderate the impact of any outlier estimates. Direct estimates for a specific 6-month period that are unusually high or unusually low have less impact on the final 12-month state-level estimate when they are considered in a model that incorporates six other 6-month time periods. Examples of these outlier estimates can be seen in Table I for several areas in 2007. For example, the direct estimates for the District of

Columbia for January–June 2007 and for Oklahoma for July–December 2007 were substantially higher than for any other 6-month time period for those areas.

For some states (e.g., Delaware, Hawaii, Idaho, Maine, Montana, South Dakota, Vermont, Wyoming), the current model gives a wider confidence interval.

We believe that some of the confidence intervals associated with the estimates from the model used in the previous report had unrealistically narrow confidence intervals (e.g., Vermont). This may have occurred because, for the model used in the previous year, “widest plausible intervals” were constructed as a proxy for confidence

intervals. We believe that the confidence intervals associated with the estimates using the current model are more accurate. These confidence intervals have coverage probability approximately equal to the nominal level of 95%.

Table IV. Estimated regression coefficients (with standard errors) for models predicting the percentage of children living in households with various telephone status: United States, January 2007–June 2010

Predictor ¹	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only
Intercept		Coefficient (standard error)			
Jan–Jun 2007	0.608 (0.029)	0.745 (0.024)	1.278 (0.027)	0.767 (0.027)	0.823 (0.028)
Jul–Dec 2007	0.666 (0.030)	0.802 (0.026)	1.223 (0.028)	0.747 (0.029)	0.740 (0.029)
Jan–Jun 2008	0.763 (0.030)	0.835 (0.025)	1.203 (0.027)	0.712 (0.027)	0.688 (0.028)
Jul–Dec 2008	0.781 (0.031)	0.858 (0.026)	1.198 (0.029)	0.703 (0.029)	0.643 (0.030)
Jan–Jun 2009	0.872 (0.031)	0.915 (0.027)	1.190 (0.028)	0.660 (0.028)	0.569 (0.029)
Jul–Dec 2009	0.994 (0.028)	0.926 (0.024)	1.165 (0.025)	0.609 (0.026)	0.563 (0.027)
Jan–Jun 2010	1.022 (0.032)	0.942 (0.025)	1.106 (0.029)	0.602 (0.028)	0.511 (0.029)
Household size					
One person	0.061 (0.039)	...†	−0.068 (0.029)	...†	...†
Two persons	0.138 (0.028)	...	−0.083 (0.031)	...	...
Three persons	0.022 (0.017)	...	...†	...	...
Four persons . . . . .	...†	0.052 (0.018)	...	...	−0.030 (0.021)
Five persons . . . . .	...	0.072 (0.022)	...	...	...
Six persons . . . . .	...	...	...	0.067 (0.030)	...
Race or ethnicity of household members					
All are Hispanic . . . . .	...	...	...	−0.105 (0.026)	...
All are black . . . . .	...	...	0.067 (0.025)	...	−0.134 (0.044)
All are white . . . . .	...	−0.081 (0.022)	...	...	...
Age of household members ²					
All adults are under 31 . . . . .	...	...	0.054 (0.024)	−0.145 (0.043)	...
At least one adult is 65 or over	−0.033 (0.023)	...	0.061 (0.031)	...	...
Education of most educated adult household member ³					
Less than high school diploma . . . . .	...	...	...	0.098 (0.027)	...
Some college . . . . .	...	...	−0.035 (0.024)	...	...
College degree or higher . . . . .	...	...	...	...	−0.118 (0.032)
Employment status of household members ⁴					
All adults are going to school . . . . .	...	...	...	0.064 (0.026)	−0.085 (0.025)
Household composition ⁵					
One or more adults and one or more children . . . . .	...	−0.202 (0.053)	...	...	...
One or more adults and one or more children (squared) . . . . .	...	−0.061 (0.018)	...	...	...
Two or more adults and one or more children	0.124 (0.045)	0.144 (0.052)	...	0.194 (0.055)	...
Two or more adults and one or more children (squared) . . . . .	...	0.050 (0.019)	...	...	...
No children . . . . .	...	...	...	0.198 (0.052)	...
All adults are male . . . . .	...	0.045 (0.024)	...	...	...
All adults are female . . . . .	...	...	...	...	0.119 (0.053)

See footnotes at end of table.

Table IV. Estimated regression coefficients (with standard errors) for models predicting the percentage of children living in households with various telephone status: United States, January 2007–June 2010—Con.

Predictor ¹	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only
Home ownership		Coefficient (standard error)			
Rented . . . . .	...	-0.118 (0.024)	...	-0.147 (0.036)	0.117 (0.027)
Rented and all household members are under age 31 . . . . .	...	...	...	0.113 (0.047)	...
Poverty status of individuals ⁶					
Less than 200% of poverty (all persons) . . . . .	...	...	-0.660 (0.204)	...	...
200%–399% of poverty (all persons) . . . . .	...	...	-0.259 (0.116)	...	...
Less than 200% of poverty (adults, aged 18 and over)	0.113 (0.016)	...	0.477 (0.186)	...	...
200%–399% of poverty (adults, aged 18 and over) . . . . .	...	...	0.227 (0.112)	...	...
Less than 200% of poverty (children, aged 0–17 years) . . . . .	...	0.084 (0.023)	...	...	-0.095 (0.039)
Listed telephones					
Listed telephone numbers per capita	-0.070 (0.019)	...	...	...	...
Census region ⁷					
Northeast . . . . .	...	...	...	0.170 (0.053)	...
Midwest	0.105 (0.038)	-0.094 (0.031)	...	...	...
South	0.150 (0.037)	...	...	...	...

... Category not applicable

† Here, not applicable means the coefficient was not statistically significant in the person-level model, and therefore the covariate was not retained in this model.

¹Except for the intercepts, poverty status, census region, and listed telephones, all predictors refer to the proportion of persons in the geographic area who live in households with the specified characteristic. The linear terms of all covariates were considered. The square term of a covariate was considered only if the linear term was also included in the model. A square term of a covariate is indicated by (squared).

²The proportion of persons living in households where all adults were between ages 31 and 44, and the proportion of persons living in households where all adults were between ages 45 and 64, were not statistically significant in any model.

³The proportion of persons living in households where the education of the most educated adult was a high school diploma was not statistically significant in any model.

⁴The proportion of persons living in households where at least one adult is employed was not statistically significant in any model.

⁵The proportion of persons living in households with one adult and one or more children, the proportion of persons living in households with no related adults, the proportion of persons living in households with related adults, and the proportion of persons living in households with more than one family in the household were not statistically significant in any model.

⁶The proportion of persons at or above 400% of poverty, the proportion of adults at or above 400% of poverty, the proportion of children at 200%–399% of poverty, and the proportion of children at or above 400% of poverty were not statistically significant in any model.

⁷Indicator for the West region was not statistically significant in any model.

Table V. Goodness-of-fit (R^2) statistics for models predicting the percentage of persons living in households with various household telephone status, by age: United States, January 2007–June 2010

Dependent variable	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only
Percentage of adults	0.85	0.56	0.71	0.77	0.88
Percentage of children	0.76	0.31	0.64	0.57	0.64

Acknowledgments

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1 (c) REPORT.—Not later than 1 year after the date
2 of the enactment of this Act, the Comptroller General shall
3 submit a report on the results of the study required by
4 subsection (a) to the Committee on Energy and Commerce
5 of the House of Representatives and the Committee on
6 Commerce, Science, and Transportation of the Senate.

7 (d) TRANSMISSION SYSTEM DEFINED.—In this sec-
8 tion, the term “transmission system” means any tele-
9 communications, broadcast, satellite, commercial mobile
10 service, or other communications system that employs
11 radio spectrum.

12 **SEC. 6409. WIRELESS FACILITIES DEPLOYMENT.**

13 (a) FACILITY MODIFICATIONS.—

14 (1) IN GENERAL.—Notwithstanding section 704
15 of the Telecommunications Act of 1996 (Public Law
16 104–104) or any other provision of law, a State or
17 local government may not deny, and shall approve,
18 any eligible facilities request for a modification of an
19 existing wireless tower or base station that does not
20 substantially change the physical dimensions of such
21 tower or base station.

22 (2) ELIGIBLE FACILITIES REQUEST.—For pur-
23 poses of this subsection, the term “eligible facilities
24 request” means any request for modification of an

1 existing wireless tower or base station that in-
2 volves—

3 (A) collocation of new transmission equip-
4 ment;

5 (B) removal of transmission equipment; or

6 (C) replacement of transmission equip-
7 ment.

8 (3) APPLICABILITY OF ENVIRONMENTAL
9 LAWS.—Nothing in paragraph (1) shall be construed
10 to relieve the Commission from the requirements of
11 the National Historic Preservation Act or the Na-
12 tional Environmental Policy Act of 1969.

13 (b) FEDERAL EASEMENTS AND RIGHTS-OF-WAY.—

14 (1) GRANT.—If an executive agency, a State, a
15 political subdivision or agency of a State, or a per-
16 son, firm, or organization applies for the grant of an
17 easement or right-of-way to, in, over, or on a build-
18 ing or other property owned by the Federal Govern-
19 ment for the right to install, construct, and maintain
20 wireless service antenna structures and equipment
21 and backhaul transmission equipment, the executive
22 agency having control of the building or other prop-
23 erty may grant to the applicant, on behalf of the
24 Federal Government, an easement or right-of-way to

1 perform such installation, construction, and mainte-
2 nance.

3 (2) APPLICATION.—The Administrator of Gen-
4 eral Services shall develop a common form for appli-
5 cations for easements and rights-of-way under para-
6 graph (1) for all executive agencies that shall be
7 used by applicants with respect to the buildings or
8 other property of each such agency.

9 (3) FEE.—

10 (A) IN GENERAL.—Notwithstanding any
11 other provision of law, the Administrator of
12 General Services shall establish a fee for the
13 grant of an easement or right-of-way pursuant
14 to paragraph (1) that is based on direct cost re-
15 covery.

16 (B) EXCEPTIONS.—The Administrator of
17 General Services may establish exceptions to
18 the fee amount required under subparagraph

19 (A)—

20 (i) in consideration of the public ben-
21 efit provided by a grant of an easement or
22 right-of-way; and

23 (ii) in the interest of expanding wire-
24 less and broadband coverage.

1 (4) USE OF FEES COLLECTED.—Any fee
2 amounts collected by an executive agency pursuant
3 to paragraph (3) may be made available, as provided
4 in appropriations Acts, to such agency to cover the
5 costs of granting the easement or right-of-way.

6 (c) MASTER CONTRACTS FOR WIRELESS FACILITY
7 SITINGS.—

8 (1) IN GENERAL.—Notwithstanding section 704
9 of the Telecommunications Act of 1996 or any other
10 provision of law, and not later than 60 days after
11 the date of the enactment of this Act, the Adminis-
12 trator of General Services shall—

13 (A) develop 1 or more master contracts
14 that shall govern the placement of wireless serv-
15 ice antenna structures on buildings and other
16 property owned by the Federal Government;
17 and

18 (B) in developing the master contract or
19 contracts, standardize the treatment of the
20 placement of wireless service antenna structures
21 on building rooftops or facades, the placement
22 of wireless service antenna equipment on roof-
23 tops or inside buildings, the technology used in
24 connection with wireless service antenna struc-
25 tures or equipment placed on Federal buildings

1 and other property, and any other key issues
2 the Administrator of General Services considers
3 appropriate.

4 (2) APPLICABILITY.—The master contract or
5 contracts developed by the Administrator of General
6 Services under paragraph (1) shall apply to all pub-
7 licly accessible buildings and other property owned
8 by the Federal Government, unless the Adminis-
9 trator of General Services decides that issues with
10 respect to the siting of a wireless service antenna
11 structure on a specific building or other property
12 warrant nonstandard treatment of such building or
13 other property.

14 (3) APPLICATION.—The Administrator of Gen-
15 eral Services shall develop a common form or set of
16 forms for wireless service antenna structure siting
17 applications under this subsection for all executive
18 agencies that shall be used by applicants with re-
19 spect to the buildings and other property of each
20 such agency.

21 (d) EXECUTIVE AGENCY DEFINED.—In this section,
22 the term “executive agency” has the meaning given such
23 term in section 102 of title 40, United States Code.



February 27, 2012

City of Kirkland
 Planning Department
 Attn: Nancy Cox, Development Review Manager
 123 Fifth Avenue
 Kirkland, WA 98033

VIA EMAIL AND HAND DELIVERY

**RE: Amendments to KZC Chapter 117 – Personal Wireless Service Facilities (PWSF)
 Kirkland Planning Commission, Houghton Community Council
 AT&T LTE 4G Overlay Project**

Dear Nancy:

Thank you for alerting me to the upcoming discussions with the Kirkland Planning Commission and Houghton Community Council regarding potential changes to the nonconforming requirements that would apply to AT&T's existing wireless facilities in the city. We appreciate this opportunity to comment on and express support for potential code changes that would allow AT&T to more quickly and sensibly upgrade its facilities to provide the latest wireless technologies that Kirkland residents enjoy.

In the past four years, demand for data provided by AT&T has grown exponentially, by 8,000%, prompting AT&T to invest heavily in new generations of technology to keep up. AT&T is in the process of upgrading all of its Kirkland facilities to the latest wireless broadband technology – LTE (also known as a 4G network), which will eventually be capable of 125 Mb/s. By way of comparison, LTE connections will be capable of approximately ten times the current speed of most home cable internet connections of Kirkland residents.

The impact of the upgrading all of AT&T's facilities in Kirkland is fairly modest. Existing sites (ranging from rooftop, utility pole, and monopole facilities) would generally require one antenna per sector to be added/replaced (up to three antennas per site) as well as the addition of a new small equipment cabinet inside existing compound. The change in the visual impact of each site would range from being unnoticeable (where antennas are replaced) to very minor (a few antennas added).

The major issues we have found with Kirkland's wireless code relate to nonconforming requirements that preclude AT&T from upgrading to new technologies on many existing sites without significant compromises. The way the Code is written today, some existing antennas cannot be replaced with a new antennas, even if they were identical, without requiring a new permit. The replacement antennas would be subject to new design requirements, even if they were legally permitted in Kirkland or predecessor jurisdictions. These changes range from having



to lower height, which can lead to an overall loss of coverage, changing the configuration of antennas, which can lead to a significant loss in system efficiency, and in some case, make sites unable to function at all, leading to construction of more facilities to be built to make up the loss. Keep in mind that the visual impact of these minor upgrades is very small to begin with. These wireless facilities already exist and already contribute to the character of the neighborhoods in which they are located.

Overall, the nonconforming requirements are very costly, very time consuming, and don't make sense given the modest level in which the facilities are being modified.

It is important to note that Kirkland's nonconforming requirements for wireless facilities appear to be inconsistent with recent federal legislation (Section 6409 of the Middle Class Tax Relief and Job Creation Act of 2012, see attached) regarding upgrades/modifications to wireless facilities. The statute says, "local government may not deny, and shall approve any eligible facilities request for a modification... that does not substantially change the physical dimensions of such tower and base station." The modification is defined as the replacement, removal, and addition of antennas/equipment. Even before this recent legislation, there was a question whether Kirkland's nonconforming requirements for wireless facilities were legal, and more practically, enforceable.

Regardless, there are good, practical reasons for the City to change these requirements. With such a large population of technology workers and businesses in and around Kirkland, it is important that new wireless technologies be deployed quickly to support the pace of innovation created by these workers and industries. The City of Kirkland is important to AT&T – we would like to work constructively with the City on regulations that allow for facilities to be upgraded quickly, and do not substantially increase impacts on the community.

We appreciate this opportunity to comment. If you have any questions, feel free to contact me at (206) 227-0020 or at ken.lyons@wirelesscounsel.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Lyons', with a long, sweeping horizontal line extending to the right.

Ken Lyons
Jurisdictional Relations Director, PNW, LTE

cc: Peter Gonzales, AT&T Mobility
Rich Busch, Busch Law Firm, PLLC
File