

In the IRFA, we stated that 27 incumbent licensees were governmental entities. However, we correct that number under our current database that reflects that, of the total 86 licensees, 19 are governmental entities and that 14 of them are municipalities of various sizes. As for the remaining number of licensees, our database reflects that 59 are LTTS licensees and 8 are private business users.<sup>68</sup>

48. Sunnyvale identifies approximately 40 municipalities in which it has installed traffic control devices. However, we can find only approximately 12 on the list that are licensees and are in our database. Although it also submits the names of more than 50 governmental entities where it has installations on contract and awaiting completion, we do not know how many of those localities, if any, would become licensees. Although ITE and USDOT also assert that 40 communities are using 31 GHz traffic systems, we note above that our database reflects a total of 14 licensed municipalities and we cannot otherwise verify commenters' figures. It could be the listings identify unlicensed users of the spectrum, a fact that may have escaped our monitoring and enforcement efforts. If users of 31 GHz spectrum have failed to apply for a license and are not operating lawfully, they cannot expect to be included in our considerations here.

49. As for the list submitted by SBA identifying 27 dealers of Sierra's equipment, the list does not indicate if any of them are licensees or if the equipment they sell is used by licensed 31 GHz services. However, we note that Comstat is listed, and it filed comments. Comstat states it has installed three systems supplied by Sierra to carry critical information from facility to facility and that were appropriately licensed through the Commission. It claims that the customers would have to move to other frequencies if we designated 31 GHz for LMDS as proposed and that, as a result, the systems would be useless and its spare radio systems would be a total loss.<sup>69</sup>

50. We realize that manufacturers of equipment used for existing 31 GHz services would be affected by our proposal, which could require them to modify such equipment for other spectrum or develop new equipment for other uses, such as LMDS. Nevertheless, these manufacturers are not included in the proposed rule changes, and they are neither subject to our existing 31 GHz rules nor the proposed changes to the licensing of that band. SBA argues that over a dozen of Sierra's resellers appear to be small businesses, but since it appears they are not licensees and the impact of this rulemaking is unclear and indirect at best, we do not alter our figures to include them in the number of existing services impacted by our proposed

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<sup>68</sup> Appendix B includes a list identifying each of the existing governmental and private business licensees and the cities in which their operations currently are authorized to reflect those markets affected by these incumbent licensees.

<sup>69</sup> Comstat Comments to *Fourth NPRM* at 2-3.

designation for LMDS nor consider how alternatives could minimize such an impact if it did exist.

51. We also clarify for Sierra that the licensees listed for mailing the *Fourth NPRM* omits the LTTS licensees, but includes all the remaining licensees. We find their omission from the mailing list has no material effect on our considerations of our proposed designation. In the *Fourth NPRM*, we sought comment from all interested parties and discussed all incumbent licensees, noting that 31 GHz spectrum is used as a radio link by broadcasters.<sup>70</sup> In this Report and Order, we are considering all incumbent licensees and interests in determining whether our proposal is in the public interest.

## (2) Scope of Existing 31 GHz Services

52. IMSA, Sierra, and Sunnyvale argue that we also underestimated the locations and extent of all incumbent uses of 31 GHz spectrum when we stated in the *Fourth NPRM* that usage appears light and geographically concentrated in a few areas of the Nation.<sup>71</sup> Sierra presents a variety of arguments in support of its contentions, as follows.<sup>72</sup> It asserts that the traffic control systems are used by more than 30 State, county, and city governments spread over at least 10 States and that many of them are large cities, counties, or States. It contends that uses are not limited to traffic lights and local area networks, and that non-governmental users are similarly dispersed and provide an assortment of wireless voice, video, and data communication services for private and common carrier applications.

53. Sierra also asserts that our proposal to designate the 31 GHz band for primary use by LMDS ignores our goals when we adopted the service rules for 31 GHz in 1985 to meet communications needs unfilled by traditional service categories. Sierra states that it provides the majority of 31 GHz transmitters currently in use, that it is shipping 75 percent more equipment in 1996 than in 1995, and that it expects to ship four times more equipment in 1997 than in 1996. It contends that the market for private network equipment continues to double every two years and that the wireless solution for short-range transmissions in 31 GHz is particularly economical and preferable.

54. In addressing these arguments, we first seek to clarify the nature and scope of the services that we authorized for 31 GHz in the *Spectrum Utilization Second Report and Order*. As we stated in the *Fourth NPRM*, we made the spectrum at 31 GHz available to satisfy vari-

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<sup>70</sup> *Fourth NPRM*, at para. 99.

<sup>71</sup> *Id.*

<sup>72</sup> Sierra Comments to *Fourth NPRM* at 2-6.

ous short-range, fixed and mobile communications needs pursuant to reduced licensing and coordination requirements.<sup>73</sup> The examples included a common carrier using the band to establish a temporary radio link to bypass an existing cable facility that has been disrupted or a broadcaster establishing a radio link between a television camera and a mobile relay station needed by broadcasters or cable operators. To encourage expanded use of the band, we authorized operations on a co-equal, non-protected basis.<sup>74</sup> Applicants specify whether operations are to be licensed on a point-to-point basis or within an area of operation defined by a point and radius.<sup>75</sup> The rules implementing the 31 GHz services are currently located in Part 101 for the private operational fixed and LTTS microwave services, in Part 74 for auxiliary broadcasting services, in Part 78 for cable television relay services, and in Part 95 for general mobile radio services.<sup>76</sup> The 31 GHz band is one of several bands identified in the rules that are available for these services.

55. Our designation of the 31 GHz band for these services was part of an ongoing proceeding to establish a spectrum utilization policy for the use of certain bands between 947 MHz and 40 GHz by fixed and mobile services.<sup>77</sup> However, just as we did in that docket, we have a responsibility to revisit spectrum use to determine whether it is being put to the most efficient and effective use in the public interest. We have noted that our database reveals that current licensees fall into three categories of users, and all of them are regulated under Part 101. Most are LTTS licensees. Unlike the other two categories of users, LTTS is licensed on a broad area basis to provide temporary service for less than six months on an isolated, as-

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<sup>73</sup> *Fourth NPRM*, at para. 99.

<sup>74</sup> *Spectrum Utilization Second Report and Order*, at para. 10.

<sup>75</sup> *Id.* at 10.

<sup>76</sup> 47 CFR §§ 101.147(t), 101.803(e), 74.602(h), 78.18(a), 95.1(b). We recently adopted Part 101 to consolidate all of the common carrier microwave service rules in Part 21 and all of Part 94, which governed private microwave services, into one set of streamlined rules. Thus, the previous rules implementing 31 GHz services in Sections 21.701(k) and 94.65(n) have been superseded by the Part 101 rules. Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, WT Docket No. 94-148; Amendment of Part 21 of the Commission's Rules for the Domestic Public Fixed Radio Services, CC Docket No. 93-2; and McCaw Cellular Communications, Inc., Petition for Rulemaking, RM-7681; Report and Order, 11 FCC Rcd 13449 (1996) (*Part 101 Report and Order*).

<sup>77</sup> Establishment of a Spectrum Utilization Policy for the Fixed and Mobile Services' Use of Certain Bands Between 947 MHz and 40 GHz, Gen. Docket No. 82-334, Notice of Proposed Rulemaking, FCC 83-2, released Feb. 15, 1983 (*Spectrum Utilization First Notice*); First Report and Order, FCC 83-393, released Nov. 3, 1983 (*Spectrum Utilization First Report and Order*).

needed basis.<sup>78</sup> Service may be offered only if licensees are able to clear their channels for use. Thus, reliance on 31 GHz spectrum to meet these immediate needs is tenuous, since licensees must have alternative services available if interference-free 31 GHz spectrum is not available. Only eight licenses are issued for private business uses, which are limited in scope to internal business uses. As for the remaining 19 governmental licensees, they provide traffic control services that all of the comments address and that we discuss below.

56. Thus, although licensees may be dispersed nationwide and services scattered among many States, most of those licenses are for services with no fixed location that are only temporary and secondary in nature. All of the services are limited to very short range microwave services that consist of simplified communication functions, which are not licensed only on the 31 GHz band. We do not dispute the importance that some State and local governmental agencies place on their utilization of 31 GHz for traffic control and other functions. However, they are limited to approximately 19 licensees and their operations are confined to localized services scattered among seven States. Based on an assessment of the nationwide availability of the spectrum, it is apparent that the number of entities operating under the existing rules for 31 GHz services is small and the locations are very few and confined.

### (3) Traffic Control Systems

57. Most of the comments opposing our proposed designation of 31 GHz argue that the band is being used by public safety entities to provide important traffic control services that are being developed in furtherance of national traffic and air pollution control goals. As indicated, there are 19 licensees that are governmental entities and that are authorized to engage in such services. IMSA, ITE, Nevada DOT, SBA, Sierra, Sunnysvale, and USDOT argue that our proposal fails to take into account the importance of the traffic control technology and systems in 31 GHz to public safety and pollution control. Specifically, IMSA and Sierra argue that the technology is becoming increasingly popular for effective traffic control systems which involve video, voice, and other communications devices and that are significantly less costly than traditional method of interconnecting signals using underground cable.<sup>79</sup> Sunnysvale recently completed development of traffic control equipment with Sierra that is being promoted on the market and that is in demand.<sup>80</sup>

58. ITE argues that transportation professionals are involved in ITS programs funded by USDOT, which use different technologies to improve transportation and promote more

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<sup>78</sup> 47 CFR §§ 101.805, 101.815.

<sup>79</sup> IMSA Reply Comments to *Fourth NPRM* at 2-5; Sierra Reply Comments to *Fourth NPRM* at 2-4.

<sup>80</sup> Sunnysvale Comments to *Fourth NPRM* at 1.

efficient use of existing infrastructure by avoiding new highway construction costs. ITE argues that 31 GHz traffic systems are used for ITS and that we should not change the use of the band without making USDOT a partner in the decision making process.<sup>81</sup> USDOT asserts that use of point-to-point microwave links has become a significant tool in the surveillance and control of the roads by providing a data and video pipeline for traffic managers. It asserts that the Federal and local governments are making major investments in new technologies to alleviate traffic congestion and urges that we protect existing and in-progress investments by allowing 31 GHz service to continue on at least a portion of the spectrum.<sup>82</sup> SBA emphasizes the importance of our consideration of the impact of our proposal on local governmental entities, which it contends are expected to grow significantly now that Sunnyvale's traffic control technology is available.<sup>83</sup>

59. Of the governmental entities that are licensed to use the spectrum for such traffic control systems, MSAPRC indicates that it is funding such systems in Southern California. Nevada DOT established a traffic signal control system for the Las Vegas metropolitan area, which has over 1 million population. It has received authorization to operate in the 13 GHz and 18 GHz bands to transport video images in the system, and is awaiting authorization in the 31 GHz band to extend the system around the control center. The system will cost approximately \$11 million and is expected to reduce air pollution and save costs over existing management systems. It argues that the video surveillance signals will be degraded without deployment of the 31 GHz technology and the viability of the new network would be threatened.<sup>84</sup>

60. Of the municipalities, Palm Springs states it has licensed and installed 31 GHz radios for the past two years involving 35 signals, with a plan for an additional 20 signals to be added in the next year and for a total of 70 when the project is completed in three years. It argues that the systems are affordable, important to the public safety, and reduce exhaust emissions. San Diego recently completed installation of a signal system using 31 GHz to coordinate data between 13 intersections and a master traffic control system. It argues that design and installation costs are substantially reduced, maintenance costs are less, and the interconnect system is more effective than others.

61. Topeka operates 42 radio links in the 31 GHz band as part of a system that controls traffic lights throughout the city. It asserts that it invested \$165,000 in the system.

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<sup>81</sup> ITE Letter of Sept. 6, 1996.

<sup>82</sup> USDOT Letter of Sept. 26, 1996.

<sup>83</sup> SBA Reply Comments to *Fourth NPRM* at 1.

<sup>84</sup> MSAPRC Comments to *Fourth NPRM* at 1; Nevada DOT Letter of Sept. 5, 1996.

Although Honolulu and Long Beach do not hold licenses, Lone Beach claims it has spend over \$1.5 million to purchase 31 GHz radios that link 37 intersections to the Traffic Management Center (TMC). Honolulu asserts that it depends on the 31 GHz bandwidth for communications between its TMC and various signal sites, and that it is expanding its system into freeway and other programs. All the entities argue that adoption of our proposed designation would require them to modify or replace equipment in order to use other technologies, at great expense to taxpayers.<sup>85</sup>

62. We find that commenters have demonstrated that the traffic control systems currently using 31 GHz spectrum are an important category of incumbent services. We recognized in the *Fourth NPRM* that traffic signal communication is the most extensive incumbent use of 31 GHz, which commenters confirm.<sup>86</sup> These systems are used increasingly by state and local governments to reduce congestion at busy intersections and combat air pollution by controlling vehicle emissions under standards and goals established by the Federal Government. In the following sections we balance these incumbent interests with the interests that we believe make it important for us to designate spectrum for new LMDS operations.

**d. Basis for Redesignation: Protection Status of Incumbents and Public Interest**

63. In the *Fourth NPRM*, we sought comment regarding whether incumbents should be relocated to another band where interference protection is provided by our rules, such as the 23 GHz frequency band, or whether incumbents could be accommodated by other methods without affecting LMDS in the same band despite the fact that incumbents have assumed all the risks of receiving interference.<sup>87</sup> IMSA, SBA, Sierra, and Sunnyvale argue that our reliance on the present lack of interference protection at 31 GHz is no basis to displace the incumbent services from 31 GHz and subject them to interference, for the first time, that would effectively eliminate their services. IMSA argues that we ignored in the *Fourth NPRM* both our intent in originally allocating the 31 GHz band and the practical reality of 31 GHz operations under currently applicable technical rules.<sup>88</sup> Sierra points out that, although 31 GHz

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<sup>85</sup> Palm Springs Comments to *Fourth NPRM* at 1; San Diego Comments to *Fourth NPRM* at 1; Topeka Comments to *Fourth NPRM* at 1; Long Beach Comments to *Fourth NPRM* at 1; Honolulu Comments to *Fourth NPRM* at 1.

<sup>86</sup> *Fourth NPRM*, at para. 99.

<sup>87</sup> *Id.* at para. 102.

<sup>88</sup> IMSA Reply Comments to *Fourth NPRM* at 11.

users may have no legal protection against interfering co-users, they are afforded effective protection against interference by the technical rules.<sup>89</sup>

64. All three categories of current licensees were licensed under rules that require they share the frequency on a co-equal basis on a non-protected basis, without protection from harmful interference.<sup>90</sup> However, as commenters assert, their operations in effect are free from interference. In the *Spectrum Utilization Second Report and Order*, we concluded that the probability of causing or receiving harmful interference at 31 GHz would be small because of the technical requirements we imposed and the geographic diversity of use. Our goal was to provide for reduced licensing and coordination requirements for service providers utilizing the band, giving each licensee equal access and no rights to object to harmful interference being caused by any other licensed operation.<sup>91</sup>

65. Thus, as IMSA argues, it would appear that incumbent 31 GHz licensees engaged in traffic control operations are not typical secondary spectrum users, inasmuch as all other categories of licensees in the band are not entitled to protection. And among the current licensees, the technical rules provide them with effective protection and immunity from the other licensed operators.<sup>92</sup> Moreover, current licensing is not extensive, so that licensees experience little or no impact from other 31 GHz licensees. Despite their non-protected status, incumbent licensees are not currently subject to interference and had no reason to anticipate a large degree of interference under the existing licensing scheme.

66. Sierra further argues that the fact that incumbents rely on technical rules for interference protection, rather than on more explicit rules barring interfering operations, is irrelevant to the requirement that we make allocation decisions based on the public interest.<sup>93</sup> IMSA and Sierra, among others, request that we consider fully the interests of the present users of 31 GHz as reflected in this record, which they argue establishes that it would be contrary to the public interest to adopt our proposal to redesignate the band for LMDS use on a primary basis.<sup>94</sup> IMSA argues that although some public value is derived from the promo-

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<sup>89</sup> Sierra Comments to *Fourth NPRM* at 6-8; Sierra Reply Comments to *Fourth NPRM* at 7-8.

<sup>90</sup> 47 CFR §§ 101.103(b), 101.147(t).

<sup>91</sup> *Spectrum Utilization Second Report and Order*, at para. 10.

<sup>92</sup> Sierra Comments to *Fourth NPRM* at 6-7; Topeka Comments to *Fourth NPRM* at 2.

<sup>93</sup> Sierra Comments to *Fourth NPRM* at 8. See also Sierra Reply Comments to *Fourth NPRM* at 5-8 (citing *H&B Communications Corp. v. F.C.C.*, 420 F.2d 638 (D.C. Cir. 1969)).

<sup>94</sup> IMSA Reply Comments to *Fourth NPRM* at 2-4; Sierra Comments to *Fourth NPRM* at 8.

tion of new commercial technologies such as LMDS, we cannot ignore the corresponding public detriment from displacing important governmental services such as traffic signal coordination facilities in which a considerable amount of taxpayer dollars is invested.<sup>95</sup>

67. The public interest underlies any decision we make in allocating spectrum. It is for this reason we sought comment on alternative methods for accommodating incumbent spectrum uses in the 31 GHz band. Although we have found that implementation of LMDS generally is in the public interest, we must weigh all the equities reflected in the record and balance any benefits against any possible harms. This applies equally to the incumbent services as to the LMDS services. As SBA points out, we are required to consider the impact of our proposed designation on existing users of the spectrum, in particular small governmental entities and small businesses, and consider alternatives that could minimize the impact of our proposals on them. We find that the traffic control systems serve important governmental services and are used to achieve Federal, State, and local goals to relieve traffic congestion and air pollution. We also find that 31 GHz licensees have existed co-equally and free from interference up until now. Licensed municipalities demonstrate they have substantial investments in signal systems using a number of 31 GHz radio links, and could require protection of these public safety operations from LMDS.<sup>96</sup>

68. On the other hand, we held in the *First Report and Order* that LMDS is an important new technology with a wealth of innovative services to meet a nationwide demand for improved wireless telecommunications and video subscriber services. It is expected to compete with local exchange companies for telephone service and with cable carriers, greatly enhancing customer choice and facilitating the rapid dissemination of innovative communications services.<sup>97</sup> We will weigh all these considerations in the following sections in determining how to designate the 31 GHz band between these competing interests.

#### **e. Incumbent Accommodation Alternatives**

##### **(1) Co-Existence with LMDS**

69. We requested comment regarding how incumbent licensees might co-exist with LMDS services under our proposal to designate the entire 300 megahertz in the 31 GHz band

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<sup>95</sup> IMSA Reply Comments to *Fourth NPRM* at 3, 5.

<sup>96</sup> See paras. 57-61, 66, *supra*.

<sup>97</sup> *First Report and Order*, at paras. 14-15.

to LMDS on a primary, protected basis. For example, we asked if LMDS licensees would have sufficient capacity to accommodate existing licensees as customers of their services.<sup>98</sup>

70. Endgate maintains that, if the entire 300 megahertz is designated for LMDS as proposed, incumbent users could begin to lease point-to-point spectrum from the spectrum owners. It contends that this has the advantage of guaranteeing interference-free operation.<sup>99</sup> CellularVision and CVTT request that we ensure that LMDS licensees have the flexibility to deploy services utilizing the 31 GHz spectrum during the period that the technology is being developed for LMDS use.<sup>100</sup> CellularVision argues that the flexibility to enter into post-auction sublease agreements will ensure the most efficient use of the spectrum. ComTech, RioVision, and TI argue that existing licensees accepted their licenses with non-protected status and as such would be secondary to LMDS and not entitled to compensation or other accommodation.<sup>101</sup> TI contends that incumbents could continue to use the spectrum by engineering around LMDS to resolve interference problems and notes that Topeka suggested relocating the radios it operates.<sup>102</sup>

71. All of the comments that were filed opposing designation of the 31 GHz band to LMDS are from parties interested in the traffic control uses of the band provided by governmental entities under our existing licensing rules for 31 GHz. Of these traffic control interests, none of them believes that co-existence under our proposal is possible. They argue that, if the Commission accords LMDS access to the entire 300 megahertz on a primary protected basis, any incumbent licensees are reduced to a secondary status and the interference from LMDS would essentially eliminate their 31 GHz services. They seek to avoid the costs of new or modified equipment to either accommodate the interference or move to another service band. Topeka, for example, urges that we at least make provisions to "grandfather" public safety entities to protect them from interference or provide compensation for equipment changes.<sup>103</sup> None of the comments indicates if LMDS technology would be useful or could be modified to serve their needs.

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<sup>98</sup> *Fourth NPRM*, at para. 106.

<sup>99</sup> Endgate Reply Comments to *Fourth NPRM* at 1.

<sup>100</sup> CellularVision Comments to *Fourth NPRM* at 5; CVTT Comments to *Fourth NPRM* at 9.

<sup>101</sup> ComTech Comments to *Fourth NPRM* at 5; RioVision Comments to *Fourth NPRM* at 2; TI Reply Comments to *Fourth NPRM* at 10-11.

<sup>102</sup> TI Reply Comments to *Fourth NPRM* at 9.

<sup>103</sup> Topeka Comments to *Fourth NPRM* at 3.

## (2) Relocation to 23 GHz Band

72. We asked for comments on various aspects of the 23 GHz band, its suitability, and if incumbents should be entitled to relocation costs.<sup>104</sup> No comments present reasons to support a move to the 23 GHz band. IMSA, Sierra, and Topeka oppose the proposal and argue that the band is not a suitable substitute for 31 GHz for a range of technical and financial reasons.<sup>105</sup> For example, Sierra argues that the cost of modifying existing 31 GHz radios would be the same as replacing them with new, more costly 23 GHz equipment. Moreover, 23 GHz equipment must be larger than 31 GHz, so that a 23 GHz antenna with a small enough beamwidth for efficient frequency reuse is too big for existing housing and would require the development of new casings before incumbents could relocate to 23 GHz.<sup>106</sup>

73. As commenters point out, moving to the 23 GHz band would impose financial hardships on incumbent licensees. This is a large burden to impose on the tax-supported municipalities and other governmental entities that use the traffic control systems in 31 GHz. It appears that the operations cannot be replicated in the 23 GHz band without considerable changes to the 31 GHz equipment. In these circumstances, we do not adopt relocation of incumbent services to 23 GHz as an alternative at this time. We will consider in the following sections the plans submitted by the various parties for sharing the 31 GHz band through compromises.<sup>107</sup>

## (3) Proposed Band-Sharing Plans

74. CellularVision suggests that we modify our proposal to designate the entire 300 megahertz in the 31 GHz band for LMDS.<sup>108</sup> Instead, it proposes that we designate a total of 50 megahertz, from 31.0-31.025 GHz and 31.275-31.3 GHz, for point-to-point use on a primary basis, and a total of 250 megahertz, from 31.025-31.275 GHz, for LMDS on a primary basis for two-way service. CellularVision suggests that LMDS licensees be given secondary access to the 50 megahertz designated on a primary basis for point-to-point use, based on its belief that LMDS technology will not interfere with current 31 GHz use.

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<sup>104</sup> *Fourth NPRM*, at para. 102.

<sup>105</sup> IMSA Reply Comments to the *Fourth NPRM* at 13; Sierra Comments to *Fourth NPRM* at 12-13; Topeka Comments to *Fourth NPRM* at 3-4.

<sup>106</sup> Sierra Comments to *Fourth NPRM* at 12-13.

<sup>107</sup> Given the approach we have decided to take in this Order, we need not consider the comments regarding compensation for relocation costs to be incurred by incumbent moves to other bands.

<sup>108</sup> CellularVision Reply Comments to *Fourth NPRM* at 9-10.

75. CellularVision submits a technical paper to demonstrate that two 25 megahertz segments are sufficient to accommodate use by the current systems and that operation on that basis is technically feasible. It argues that the paper demonstrates that the band is being used inefficiently by a small number of licensees and that, with an increase in frequency stability and use of narrower channels, existing uses can be accommodated in only 50 megahertz. In reply, Sierra filed *ex parte* statements that address the technical requirements of incumbent traffic control services and the need for a minimum of 120 megahertz for incumbent systems to operate.<sup>109</sup>

76. Sierra and Sunnyvale offer a proposal set out by Sierra for sharing 300 megahertz in the 31 GHz band.<sup>110</sup> The plan would designate a total of 150 megahertz to be retained for use by existing and potential users for fixed service point-to-point microwave radios under the existing 31 GHz rules. That spectrum would consist of 75 megahertz between 31.000-31.075 GHz and 75 megahertz between 31.225-31.300 GHz. The middle 150 megahertz of the band would be designated for LMDS use on a primary protected status. The Sierra plan provides that the middle 150 megahertz would be designated for subscriber-to-hub operations to compensate for the 150 megahertz that was restricted against such operations in the 28 GHz band. Sierra and Sunnyvale claim that the plan offers equipment design benefits for LMDS because of the separation between the 29 GHz and 31 GHz bands. Although the frequency separation does make antenna design more challenging, changes would be minimal because the total difference between the upper ends and lower ends of the two bands is less than 2 gigahertz.<sup>111</sup> As for incumbent services, Sierra does not anticipate harmful adjacent-band interference from LMDS use in the middle sub-band. Sierra asserts that the proposed plan should meet the technical needs of both services.<sup>112</sup>

77. Under the plan, current 31 GHz services would retain the use of the upper and lower 75 megahertz sub-bands under the same conditions to which they are currently subject, on an unprotected basis and free of interference from LMDS. LMDS would not be allowed to operate there. Incumbent point-to-point users in the middle block designated for LMDS could remain on their present frequencies until they receive interference from, or cause interference to, LMDS operations. At that time, their equipment would be retuned, rather than replaced, to conform to the new frequency plan and they would henceforth operate in the

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<sup>109</sup> *Ex Parte* Letter from Sierra to S. Toller, Sept. 10, 1996 (Sierra *Ex Parte* Letter of Sept. 10, 1996); *Ex Parte* Letter from Sierra to W. Caton, Sept. 26, 1996 (Sierra *Ex Parte* Letter of Sept. 26, 1996).

<sup>110</sup> Sierra Reply Comments to *Fourth NPRM* at 11-13; Sunnyvale Reply Comments to *Fourth NPRM* at 1-3.

<sup>111</sup> Sierra Reply Comments to *Fourth NPRM* at 12; Sunnyvale Reply Comments to *Fourth NPRM* at 2.

<sup>112</sup> Sierra Reply Comments to *Fourth NPRM* at 12, n.33.

upper or lower 75 megahertz bands. All new point-to-point licenses would be issued in the two outer band segments. Sierra asserts that it offers the plan after consultation with LMDS interests.<sup>113</sup>

78. Endgate supports the Sierra plan as a reasonable compromise of the various competing interests. It argues that we should increase the existing 50 milliwatt power limit at 31 GHz to approximately a 55 dBW limit.<sup>114</sup> IMSA, ITE, Nevada DOT, SBA, and USDOT support the plan, which they contend accommodates all the parties' interests while accomplishing the policy goals of the Commission. They argue that all users of the spectrum should be adequately accommodated to best serve the public interest and assure equitable treatment of the public agencies involved.<sup>115</sup>

#### **f. Spectrum Sharing Plan**

79. Based on the considerations expressed in the record, we have decided to modify our proposal to designate the 31 GHz band on a primary protected basis for LMDS. Instead, we adopt a plan to share the 300 megahertz based on features of both the plans submitted by CellularVision and Sierra. We find that a sharing plan is supported by the principal advocates of both LMDS and incumbent 31 GHz services. Although most of the LMDS commenters generally support our proposed designation, none has filed pleadings in specific opposition to the subsequently submitted plans. As we had requested, the parties involved have cooperated and produced alternative band sharing plans that they each contend would allow the services to coexist without imposing economic or technical burdens on LMDS providers. These are laudable efforts that enable us to reach a decision that, while not relying exclusively on either proposed plan, is more equitable and balanced.

##### **(1) Segmentation**

80. We adopt our proposal to designate for LMDS the 300 megahertz of spectrum in the 31 GHz band. However, rather than adopt our proposal to accord LMDS primary protected status and incumbents secondary status for the entire 300 megahertz, we segment the band

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<sup>113</sup> *Id.* at 12, n.31.

<sup>114</sup> Endgate Reply Comments to *Fourth NPRM* at 1.

<sup>115</sup> USDOT Letter of Sept. 26, 1996; SBA Reply Comments to *Fourth NPRM* at 2-3.

as enumerated by Sierra for purposes of according protection from harmful interference,<sup>116</sup> as follows:

SEGMENTATION PLAN	
FREQUENCY BAND	SPECTRUM
31.000-31.075 GHz	75 megahertz
31.075-31.225 GHz	150 megahertz
31.225-31.300 GHz	75 megahertz

As discussed more fully below, we grant LMDS protection from harmful interference by incumbents or other LMDS licensees in the middle 150 megahertz of the 31 GHz band. We do not grant any incumbent licensees protection from harmful interference in the middle 150 megahertz. We provide

that the existing operations of governmental and private business incumbent licensees in the upper and lower 75 megahertz bands are to be protected from harmful interference from LMDS to enable them to continue existing operations. LMDS licensees in the upper and lower 75 megahertz bands will receive protection from harmful interference by other LMDS licensees and from all incumbent licensees.

81. We find that this spectrum division ensures sufficient spectrum to meet the needs of both LMDS and incumbent licensees. It has been sufficiently established that LMDS requires at a minimum an additional 150 megahertz of unencumbered spectrum in order to compensate for the 150 megahertz encumbered in the *First Report and Order* and to provide LMDS with the 1 gigahertz we found it needed for broadband service. Although CellularVision has proposed that LMDS be assigned 250 megahertz in the center of the band, it appears that this proposal was based on its belief that two 25 megahertz segments are sufficient for incumbent systems. However, Sierra has demonstrated that this segmentation cannot accommodate most incumbent operations.

82. According to Sierra, even major equipment modifications would not make sufficient capacity available to manage certain kinds of inputs that are important to municipal licensees that use their equipment for video monitoring.<sup>117</sup> It appears that an assignment of only 50 megahertz to incumbents would make it difficult to avoid intra-system interference in certain system configurations. Sierra points out that a typical major intersection sends and receives data in four directions, consisting of both directions along each street. Thus, at least four frequency pairs are required to allow proper frequency coordination to prevent individual

<sup>116</sup> Harmful interference is defined in the Commission's Rules as "interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with these [International Radio] Regulations." 47 CFR § 2.1.

<sup>117</sup> Sierra *Ex Parte* Letter of Sept. 10, 1996, at 2.

radio links at the intersection from interfering with each other.<sup>118</sup> We conclude that CellularVision's segmentation plan would be inadequate for important incumbent services.

83. Sierra has stated that the 200 megahertz requirement for existing, four-frequency pair traffic control installation equipment could be modified to accommodate four frequency pairs within 150 megahertz, at a price accessible to existing municipal licensees.<sup>119</sup> Although Sierra has indicated that it could modify its equipment to accommodate existing operations within 125 megahertz (with 62.5 megahertz at each end of the band),<sup>120</sup> this would not be as satisfactory as providing 75 megahertz at each end. On balance, we find that the segmentation proposal advanced by Sierra meets the needs of LMDS, while providing most incumbent licensees with the spectrum needed to continue their important operations.

84. Sunnyvale requests that, if no compromise designation of spectrum is approved, we initiate a negotiated rulemaking under Section 1.18 of the Commission's Rules.<sup>121</sup> Inasmuch as we adopt a band sharing plan that reflects the segmentation requested by Sierra and provides the protection that Sunnyvale seeks for incumbent licensees, we deny the request. As a result, we need not address Sunnyvale's argument that adoption of our original proposal to authorize 300 megahertz in the 31 GHz band would constitute a modification of the existing licenses in the band by removing them from a co-equal status among approved users to a secondary status with new users.<sup>122</sup> The band sharing plan we adopt allows incumbent licensees engaged in traffic control services, which Sunnyvale addresses, to continue operating in the amount of spectrum they require without harmful interference from LMDS, thus preserving their status.

## (2) LMDS Use and Protection

85. We decline to adopt Sierra's proposal with respect to the limitations it seeks to impose on LMDS access to the entire band. We are adopting our proposal to designate the entire 300 megahertz for LMDS use, rather than designating only the 150 megahertz in the middle segment, as Sierra requests. There is no need to exclude LMDS from the outer 150 megahertz. LMDS is required to protect governmental and private business incumbent

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<sup>118</sup> *Id.* at 1-2.

<sup>119</sup> *Id.* at 2.

<sup>120</sup> Sierra *Ex Parte* Letter of Sept. 26, 1996.

<sup>121</sup> Sunnyvale Reply Comments to *Fourth NPRM* at 3.

<sup>122</sup> *Id.* at 4 (citing *F.C.C. v. National Broadcasting Co. (KOA)*, 319 U.S. 239 (1943)); Sunnyvale Comments to *Fourth NPRM* at 4.

licensees in the outer bands from harmful interference, which is to ensure that they are able to continue their existing operations. In the case of such incumbent licensees that are licensed on a point-to-radius basis, LMDS licensees shall be subject to this protection requirement in the case of existing links operated by such incumbents and in the case of links added by such incumbents in the future in accordance with the terms of their point-to-radius licenses. For example, an LMDS licensee may not initiate operations within the point-to-radius area licensed to an incumbent, even if the incumbent has not initiated operations to the fullest extent of the license. An LMDS licensee, however, may initiate operations at the border of the incumbent's license area without prior coordination if the LMDS licensee's operations would not cause harmful interference to an incumbent's existing operations. In the future, the incumbent may add additional stations within its license area and would need to coordinate if its new operations might cause harmful interference to the existing operations of the LMDS licensee.<sup>123</sup>

86. We also adopt our proposal to provide LMDS with protected status in the entire 300 megahertz, rather than limiting it to only a primary protected status in the middle segment. Although LMDS may operate in the middle 150 megahertz without concern to the interference it may be creating, it is to be concerned to a certain extent about interference in the outer bands in order to protect governmental and private business incumbent licensees. However, we require those incumbent licensees in the outer bands to also protect LMDS from harmful interference. This does not diminish their protection from LMDS, but does require both sets of licensees to negotiate and arrive at mutually acceptable solutions to interference in the outer bands.

87. We reject Sierra's proposal to limit LMDS operations in the middle segment to only subscriber-to-hub service. This limitation would be inconsistent with our goal to provide LMDS with the middle 150 megahertz on a primary protected basis to ensure that, when it joins this band with the unencumbered 850 megahertz in the 28 GHz band, it has the spectrum required for interactive communications and full development of LMDS technology and service. Because of the secondary status of incumbents in this middle portion, we find that limits on LMDS operations there would not necessarily help incumbents (without upgrading their status), but would very likely thwart our goals for LMDS. We therefore adopt no restriction in the 31 GHz band with regard to the direction of permissible LMDS transmissions. LMDS operators thus are permitted to transfer information from hub-to-hub, hub-to-subscriber, and subscriber-to-hub.

### (3) Incumbent Licensee Use and Protection

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<sup>123</sup> We discuss the ability of incumbent licensees to modify their existing licenses in paras. 102-103, *infra*.

88. We have determined that a plan to share the 31 GHz band better meets the needs of incumbents, rather than relocation of incumbents to another band. All incumbents are permitted to continue operating in the entire 300 megahertz of spectrum. In addition, our rules do not preclude an incumbent licensee from obtaining an LMDS license. We decline to adopt CellularVision's proposal to exclude incumbents altogether from the middle segment that is assigned to LMDS. That serves no purpose under the plan we adopt, which provides LMDS with primary status in the middle segment. Thus, LMDS has the protection it needs from harmful interference to ensure an unencumbered segment of 150 megahertz, and the continued operations of incumbents in this segment is of negligible impact.

89. As for the two outer bands of 75 megahertz each, we do not include LTTS incumbent licensees for protection from harmful interference from LMDS as we do for the remaining incumbent licensees. As discussed previously, our database reveals that 59 of the total 86 licensees under 31 GHz rules are LTTS, while the remaining 19 are governmental entities and 8 are private businesses.<sup>124</sup> Essentially all of the comments seek protection for the traffic control systems established by the municipal licensees, while no comments address LTTS. As we noted, LTTS is unlike the other two categories of users because of the temporary, secondary nature of the service.<sup>125</sup> We leave the status of LTTS licensees unchanged for several reasons. Unlike the municipal and other private business incumbent licensees, they provide short-term services on a temporary basis and do not have the same type of permanent facilities or systems that we have found should be protected. Moreover, they currently operate on a secondary basis to any permanent facilities wherever their temporary operations are set up. Finally, they have broad authorization that provides access to the entire band and would make it difficult to limit their protection to a small geographic area.

90. All incumbents in the middle segment, and LTTS in the entire band, will be secondary to LMDS and may continue to operate within the existing parameters of their licenses. However, should frequency conflicts arise with an LMDS system, all incumbents have several possible options for resolving the conflict. The incumbent can modify its system to eliminate any interference to LMDS systems, acquire the use of spectrum from the LMDS licensee through geographic partitioning, transfer its operations to a different transmission medium, or lease service or transmission capacity from a common carrier.

#### **(4) Relocation and Modification Procedures**

91. We seek to accommodate non-LTTS incumbents in the middle 150 megahertz segment that cannot alter their systems satisfactorily or are otherwise concerned about their sec-

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<sup>124</sup> See para. 47, *supra*.

<sup>125</sup> See paras. 54-55, *supra*.

ondary status to LMDS providers in that segment. We provide an option for them to relocate to the blocks of 75 megahertz at each end of the band in order to take advantage of the protection we have provided non-LTTS licensees in those segments from harmful interference by LMDS licensees. This relocation option will be available for a 15-day period following the effective date of the rules adopted in this Report and Order, as set forth in paragraph 440, *infra*. Because of the fact that the rules adopted in this Report and Order will not take effect before the end of the 60-day period following their publication in the Federal Register, we believe that incumbent licensees will have sufficient time to determine whether to file license modifications in order to relocate to the blocks of 75 megahertz at each end of the band.

92. Relocation from the middle 150 megahertz segment requires that the non-LTTS incumbent apply for a modification of its license under the relocation procedure we adopt in this Order. Modification applications are to be filed by the end of the 15-day period commencing on the effective date of the rules adopted in this Order. Modification applications are filed in accordance with the existing rules that govern the incumbent 31 GHz licensees in Part 101 of the Commission's Rules. Under our current rules, any such licensee filing a modification application in accordance with this Report and Order will be required to implement any license changes granted by the Commission not later than 18 months after the date of such grant.<sup>126</sup> Because the incumbents are not authorized to provide service on a common carriage basis, their modification applications are not subject to the public notice and petition to deny requirements of Section 101.37 of the Commission's Rules.<sup>127</sup> Thus, applications for modification of an incumbent's license under the relocation procedure would be expedited.

93. We conclude that the relocation option and the license modification procedure we adopt provide incumbent governmental and private business licensees in the middle 150 megahertz segment with a reasonable opportunity to continue their operations in a manner that is not unduly disruptive. We note that Sierra proposed that incumbent licensees in this segment could retune their equipment, rather than replace the equipment, to conform to the segmentation plan we adopt and operate in the two 75 megahertz bands.<sup>128</sup> Our relocation option provides them with this opportunity. Sierra further requests that, as a matter of equity, we require LMDS licensees to pay for the retuning or other costs that might be incurred by incumbent licensees from relocating within the band.<sup>129</sup> We adopted the segmentation plan based in part on Sierra's comments that the costs of adjusting equipment for a move within the band to

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<sup>126</sup> Section 101.63(a) of the Commission's Rules, 47 CFR § 101.63(a).

<sup>127</sup> 47 CFR § 101.37.

<sup>128</sup> Sierra Reply Comments to *Fourth NPRM* at 9, 13.

<sup>129</sup> *Id.* at 9.

these 75 megahertz segments would not be significant. Moreover, relocation to another spectrum band is an option. We will not require any compensation for relocation costs.

**(5) Applications for New Authorizations and for  
Modifications or Renewals of Existing Licenses**

94. We sought comment on whether we should accept any applications for new licenses or for modification and renewal of existing licenses under the existing 31 GHz rules, in light of the secondary nature of the protected status of incumbent licensees to LMDS. In Sierra's proposed band-sharing plan, the incumbent services would be entirely preserved in the segments of 75 megahertz at each end of the band and future growth would be permitted under the existing rules. All comments from proponents of 31 GHz, which are the traffic control interests, support Sierra's proposal and seek continued use of the band to expand existing operations or establish new services under the existing rules.

95. ITE and USDOT argue that 31 GHz radio links are being used in the development of ITS programs, which are expected to meet Federal traffic management goals at reduced costs over the next 20 years. They urge that we allow the continued use of these services and adopt the Sierra plan, which serves the public interest by protecting public agencies that have invested public funds in this technology and by promoting public safety.<sup>130</sup> Sunnyvale asserts that it developed 31 GHz equipment with Sierra over six years that is now available for traffic control systems to be used in ITS programs in furtherance of this Federal policy for improved traffic management. It argues that this equipment is becoming popular, as endorsed by Topeka.<sup>131</sup> Nevada DOT plans to implement a large traffic system in the Las Vegas area of 1 million population using 31 GHz equipment that it has funded. Palm Springs, San Diego, and Topeka plan to expand outside existing areas, as do Long Beach and Honolulu.<sup>132</sup>

96. IMSA and Sierra argue that, regardless of the outcome of this Report and Order, we should continue to accept new applications for 31 GHz licenses and, where LMDS is accorded primary protected status, new licenses could be subject to the risk of interference. IMSA, and Topeka as well, argue that we should grandfather incumbent licensees to provide protection and allow them to renew or modify their licenses to preserve the value of their investments in 31 GHz facilities.<sup>133</sup> Sierra argues that a freeze on applications is not supported by most LMDS proponents and would serve no purpose, and argues that we should at least

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<sup>130</sup> ITE Letter of Sept. 6, 1996; USDOT Letter of Sept. 26, 1996.

<sup>131</sup> Sunnyvale Comments to *Fourth NPRM* at 2-4.

<sup>132</sup> See paras. 60-61, *supra*.

<sup>133</sup> IMSA Reply Comments to *Fourth NPRM* at 15-16.

permit users to squeeze what remaining value they can from their investments by renewing, modifying, expanding, or constructing new systems subject to LMDS interference in that case.<sup>134</sup>

97. On the other hand, TI requests that we cease licensing new users in the 31 GHz band and that we do not grandfather existing users, inasmuch as they are secondary users that should not be elevated in status.<sup>135</sup> RioVision agrees. ComTech contends that applications could be allowed if we have accorded LMDS primary protected status and ensured that no interference will ensue, but is concerned that resources could be strained by trying to deal with the interference caused to LMDS by these operations.<sup>136</sup> HP asserts that further licensing could create confusion in the band.<sup>137</sup>

98. We have carefully considered the advantages and disadvantages of allowing applications for new and expanded 31 GHz services under the existing rules, but conclude that any further growth and development of these services is inconsistent with the band-sharing plan we adopt. We have determined to designate all 300 megahertz for LMDS as necessary to fully accommodate the development and deployment of LMDS, based on comments. As TI and WebCel confirm, the promise of LMDS is its significant broadband potential and any reductions in the proposed spectrum block would delay the development of important equipment and limit the ability of LMDS providers to offer very high bandwidth services.<sup>138</sup> Incumbents have acknowledged the inherent incompatibility of their services with LMDS, which is likely to deter interest in new services that have to share spectrum with such expanding and powerful systems. Expansion of 31 GHz services would likely have a chilling effect on the efforts of LMDS providers to establish and expand their services in response to consumer demand, seriously jeopardizing our objectives in designating the band for LMDS.

99. Under the band-sharing plan we adopt, government and private business incumbent licensees are protected to the fullest extent possible in order to preserve their existing operations. Taxpayer investments and the public benefits being derived from these described systems should not be jeopardized or diminished. While many of the comments address specific or general plans for future growth of traffic control systems, that cannot be accommodated under the plan because of the uncertainties of such plans in the face of the

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<sup>134</sup> Sierra Comments to *Fourth NPRM* at 11-12; Sierra Reply Comments to *Fourth NPRM* at 8-10.

<sup>135</sup> TI Reply Comments to *Fourth NPRM* at 10-11.

<sup>136</sup> ComTech Comments to *Fourth NPRM* at 7-8.

<sup>137</sup> HP Comments to *Fourth NPRM* at 4.

<sup>138</sup> TI Comments to *Fourth NPRM* at 4-5; WebCel Reply Comments to *Fourth NPRM* at 19.

need for LMDS to develop and utilize the spectrum. As Nevada DOT and USDOT indicate, traffic control systems are being developed for a variety of bands and the technology is improving or changing rapidly.<sup>139</sup> It cannot be predicted that 31 GHz would continue to offer the best technology, or that LMDS technology would not be developed to suit some of these incumbent services. Moreover, LMDS supporters indicated a desire to accord access to their spectrum, either through leasing or other means through which similar traffic control systems could grow.<sup>140</sup> On balance, we find the benefits of allowing the expansion of incumbent licensees are outweighed by the harms to LMDS licensees of any future growth of existing 31 GHz services.

100. Given these considerations, we conclude that it is in the public interest, and in the interest of all of the parties, to dismiss any pending applications. A review of our database reflects that there are several pending applications, all of which were filed after the release date of the *Fourth NPRM* and by new applicants not currently licensed. Thus, these applicants were on notice that the Commission was considering a change in our rules for the 31 GHz band. Three of the pending applicants with several applications are the State of Nevada and the Cities of Las Vegas and North Las Vegas.<sup>141</sup> Although Sierra submits a list identifying 13 large installations that it claims are pending, only the Las Vegas installations are included in our records as having applications.<sup>142</sup>

101. In its comments, Nevada DOT has demonstrated that these pending applications are for radio links that are an integral part of its traffic signal control system for the large metropolitan area around Las Vegas, which has been underway for several months. We recognize that our dismissal may create unexpected disruptions and expenses with respect to implementing this plan and achieving its traffic management goals for the area. On the other hand, these consequences would be less than the impact of expanding LMDS operations over such a system after it were fully implemented. Our obligation is to allocate the Nation's natural resource of its spectrum for the most effective and efficient use. It has been demonstrated that, in comparison with the technology and demand for the kinds of services in LMDS, the extent to which the incumbent 31 GHz services have used this nationwide spectrum over the past 12 years in which it has been available is minimal. Given the rapidly changing marketplace and technology, Nevada DOT may well have access to other

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<sup>139</sup> Nevada DOT Letter of Sept. 5 at 2; USDOT Letter of Sept. 26.

<sup>140</sup> CellularVision Comments to *Fourth NPRM* at 5; Endgate Reply Comments to *Fourth NPRM* at 1.

<sup>141</sup> Non-governmental applicants are included in the remaining applicants and they will be refunded their filing fees, which governmental entities do not pay.

<sup>142</sup> Sierra *Ex Parte* Letter of Sept. 10, 1996, Attachment at 2.

technologies that equally suit its needs, while it has been spared the unnecessary expense of implementing a system for which the future is at best uncertain.

102. We permit incumbent licensees to renew their licenses in order to maintain their operations. We also permit them to continue to plan and conduct their operations to the full extent permitted under the current terms of their licenses, so long as they do not expand or increase these operations. Non-LTTS incumbent licensees are licensed either on a point-to-radius basis, which establishes a radius of operations, or a point-to-point basis, which is linear. To stay within their existing service parameters, the radius licensees may add links within the outer bands, as long as they do not go outside the radius. The point-to-point licensees are engaged in fixed operations provided by radio links between two points. They may not add additional links and are limited to whatever frequency pairs now exist. With regard to LTTS licensees, we have pointed out that LTTS is authorized nationwide without any designation of points to serve short-term immediate needs.<sup>143</sup> LTTS operations in existence on or after the date our rules take effect may continue those services, as well, but may not expand those services nor initiate new operations.

103. In these circumstances, we find that the kind of modifications that incumbent licensees may make to their licenses must be limited to ensure that they do not expand their operations. Accordingly, we will not allow the filing of applications to modify under Sections 101.57 and 101.59, because the modifications listed there include changing power, sites, and other service aspects that could alter operations considerably and create additional problems for LMDS. Section 101.61 provides for modifications that do not require prior authorization and allow for the replacing of equipment, as well as other changes, that would provide incumbents with the flexibility to manage existing operations without expanding. We amend Section 101.57 to exclude incumbents.

#### (6) Rules

104. We modify the rules for the licensing of 31 GHz services in order to eliminate future licensing and provide for the continuation of existing services under the band-sharing plan we have adopted. As we have indicated, all incumbent licensees are governed by Part 101 of our rules. Inasmuch as no licensees are authorized under Parts 74, 78, and 95, we delete the provisions at Sections 74.602(h), 78.18(a)(5), and 95.1(b) that authorize the assignment of the 31 GHz band for the services in those Parts, and make any other conforming amendments to those Parts.<sup>144</sup>

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<sup>143</sup> See para. 55, *supra*.

<sup>144</sup> 47 CFR §§ 74.602(h), 78.18(a)(5), 95.1(b).

105. As for Part 101, we amend the separate rules in Subpart J for LTTS by deleting the 31 GHz band as a band available for assignment in Sections 101.803(a), 101.803(d), and 101.803(e).<sup>145</sup> The technical rules for Part 101 that establish frequency availability, coordination procedures, tolerances, bandwidth, transmitter power limitations, and frequency assignments are further amended to delete the 31 GHz band as available for assignment and to preserve for all incumbent licensees their access to the entire band, subject to renewal.<sup>146</sup> The amendments provide for the sharing plan for 31 GHz by placing all incumbent licensees in a secondary status to LMDS in the middle 150 megahertz band. As for the outer segments of 75 megahertz, LTTS incumbent licensees remain in a secondary status to LMDS while non-LTTS incumbent licensees and LMDS licensees are equally protected from harmful interference.

#### **g. Application of NEPA**

106. Both Sunnyvale and IMSA<sup>147</sup> also contend that the National Environmental Policy Act of 1969 (NEPA)<sup>148</sup> and Section 1.1307(c) of the Commission's Rules,<sup>149</sup> require that we prepare an Environmental Impact Statement (EIS) prior to making a decision on the 31 GHz spectrum proposal set forth in the *Fourth NPRM*. They argue that the 31 GHz band is currently used by governmental licensees for traffic video cameras and traffic signal controls, in part, to reduce automobile idling time and consequent air pollution, and that these uses must be preserved in order to facilitate these entities' compliance with Congressionally-mandated air quality standards. These commenters claim that our proposal to designate the 31 GHz spectrum for LMDS, will have a "significant impact on the quality of the human environment," requiring an evaluation of that impact and consideration of alternative proposals, pursuant to Section 102 of NEPA and Section 1.1307(c) of the Commission's Rules.

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<sup>145</sup> 47 CFR §§ 101.803(a), 101.803(d), 101.803(e).

<sup>146</sup> 47 CFR §§ 101, 103, 107, 109, 113, 147.

<sup>147</sup> Sunnyvale Comments to *Fourth NPRM* at 5-7; IMSA Reply Comments to *Fourth NPRM* at 5-10. See also Nevada DOT Letter of Sept. 5 at 3-4; MSAPRC Comments to *Fourth NPRM* at 2-3. In addition to traffic signal interconnection, both the City of San Diego and Sunnyvale contend that use of the 31 GHz band is imperative for implementing traffic management systems relying on the rapid transmission of data, such as Intelligent Transportation Systems. San Diego Comments to *Fourth NPRM* at 1; Sunnyvale Comments to *Fourth NPRM* at 1.

<sup>148</sup> NEPA, 42 U.S.C. §§ 4321-4335.

<sup>149</sup> 47 CFR § 1.1307(c).

107. We believe that the LMDS licensing plan, as modified and adopted in this Order, does not constitute a major Federal action that will significantly affect the quality of the human environment, and thus does not require the preparation of an EIS under Section 102 of NEPA.<sup>150</sup> We have been persuaded by the comments that traffic control systems are an important category of incumbent services, and thus we have taken several measures to mitigate the impact of our 31 GHz plan on such services. Specifically, we have declined to adopt the proposal in the *Fourth NPRM* for use of the 31 GHz band, which gave rise to the concerns expressed by Sunnyvale and IMSA. Instead, we have permitted the continued operation of traffic monitoring and control systems by incumbent licensees in this band. We thus believe that the adopted LMDS licensing plan does not trigger NEPA, in that the licensing plan (1) maintains the *status quo* by allowing governmental and private business incumbent licensees to expand their operations to the full extent permitted under the terms of their present licenses and to renew those licenses, according to their original terms and parameters, in order to maintain their operations; and (2) does not alter or further impact the environment in any way.<sup>151</sup> Furthermore, as detailed below, alternative measures and technologies exist that will enable the expansion of current operations by governmental entities that hold existing licenses, as well as allow the introduction of such systems by other governmental entities.<sup>152</sup>

108. We have considered alternative band sharing plans developed by several parties, which they contend will allow LMDS and incumbent services to coexist, and we have adopted

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<sup>150</sup> 42 U.S.C. § 4332(2)(C).

<sup>151</sup> See *Douglas County v. Babbitt*, 48 F.3d 1495, 1505 (9th Cir. 1995), *cert. denied*, 116 S.Ct. 698 (1996)(Secretary of Interior's action designation of a critical habitat under the Endangered Species Act did not trigger NEPA because the action neither changed the *status quo*, nor altered the physical environment); *Committee for Auto Responsibility v. Solomon*, 603 F.2d 992, 1000 (D.C.Cir. 1979)(GSA's action in leasing an existing parking facility did not trigger NEPA because the action did not in any way further degrade air quality attributed to vehicular air pollutants and thus did not change the *status quo*); see also *Sabine River Authority v. U.S. Department of Interior*, 951 F.2d 669, 679 (5th Cir. 1992), *cert. denied*, 113 S.Ct. 75 (1992)(Fish and Wildlife Service's acquisition of a conservation easement on a wetlands habitat, which precluded the State's development of a reservoir to meet its anticipated water supply needs, did not trigger the requirement for an EIS under NEPA because the Service's action neither changed the *status quo*, nor effectuated any change in the physical environment).

<sup>152</sup> We need not address Sunnyvale's assertion that incumbents had a reasonable expectation that they could continue to use (and, presumably, to increase their use of) the 31 GHz band to meet their traffic control and air quality objectives. Incumbents' licenses were issued pursuant to reduced coordination requirements, in return for which incumbents accepted licenses conferring reduced protection from harmful interference and assumed the risk of interference with present as well as future use. See *Spectrum Utilization Second Report and Order*, at para. 10.

some of the principal components of these plans.<sup>153</sup> We rejected CellularVision's proposal to allocate two 25 megahertz segments in the 31 GHz band for incumbent use because we were convinced by Sierra that such a plan would have allocated insufficient spectrum to avoid intra-system interference in certain traffic control systems.<sup>154</sup> Under the 31 GHz plan adopted, all incumbent licensees retain the use of the 31 GHz band, while the governmental and private business licensees additionally are accorded protection in the two outer 75 megahertz segments from harmful interference from LMDS. The governmental and private business incumbent licensees presently operating in the middle 150 megahertz segment of the band and accorded secondary status with respect to LMDS in that segment have the option of relocating to the 75 megahertz segments where they, too, will be entitled to protection from harmful interference from LMDS. We believe that, under this plan, the traffic monitoring and traffic signal control functions that Sunnyvale and others contend are vital to the environment can be maintained in the band at their current levels, while allowing us to designate additional spectrum for LMDS.

109. The action we are taking allows the governmental and private business incumbent licensees to expand their operations to the full extent permitted under the terms of their present licenses and to renew those licenses, according to their original terms and parameters, in order to maintain their operations. This plan preserves the *status quo*. Under our plan, incumbent governmental licensees are authorized to continue using 31 GHz spectrum to operate traffic monitoring and control systems. The viability and usefulness of these systems is thus being preserved by the rules and procedures we adopt in this Order.

110. We have considered the significance of our decision to prohibit incumbents from seeking modifications to their present licenses in order to expand their operations beyond the scope permitted by those licenses. Incumbents hold either one of two types of licenses. One type of license specifies the coordinates of both the transmitting and the receiving stations, and limits operations to those stations. The second articulates the scope of licensed operations in terms of an area of operations.<sup>155</sup> Our band sharing plan will necessarily have a greater impact upon those incumbents holding point-to-point licenses. Under the terms of the plan we are adopting, incumbents with service area licenses will be permitted to add more transmitting and receiving stations to their current operations, so long as those additions do not exceed the service area boundaries, power levels, or other specifications set forth in the license. Point-to-point licensees, on the other hand, will be limited to the scope of their

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<sup>153</sup> See paras. 79-103, *supra*.

<sup>154</sup> See paras. 74-75, 80-82, *supra*.

<sup>155</sup> *Spectrum Utilization Second Report and Order*, at para. 12.

presently licensed operations and will not be authorized to obtain additional point-to-point licenses.

111. Although our present approach does not permit governmental licensees to expand their traffic monitoring and control operations through more extensive use of 31 GHz spectrum acquired by applications for point-to-point licenses, we emphasize that *current* operations are not disturbed by this limitation, such that the protection and preservation of the environment resulting from these governmental traffic systems will continue on the same basis and to the same extent as they do today. Thus, we conclude that our plan, taken as a whole, will occasion minimum disruption for most incumbent governmental operations.

112. We also note that a question exists whether there is sufficient causal connection between our LMDS licensing decision and ambient air quality to say that our actions in this proceeding could be the "proximate cause" of any impact on the human environment. We note that, under the present licensing scheme, an incumbent governmental licensee's expansion of its traffic monitoring systems and a new governmental applicant's ability to use the 31 GHz spectrum for such functions, are contingent upon their applying for and being granted a license. Furthermore, the removal of this opportunity cannot be said to be the proximate cause of the vehicular and other pollution factors that have precluded their attainment of ambient air quality standards established under the Clean Air Act. Our action merely limits, to some extent, a governmental entity's choice of methodologies for addressing one source of pollution and consequent non-attainment -- vehicular pollution.<sup>156</sup>

113. The number of incumbent licensees engaged in traffic control operations and thus affected by this limitation on incumbent expansion is small. Traffic control operations are provided by governmental licensees, of which there are a total of 19 spread across seven States. It appears from our database that less than half of these governmental licensees are authorized on a point-to-point basis. Of these, only four are located in non-attainment areas requiring plans to improve air quality in order to comply with the standards established by the Environmental Protection Agency.<sup>157</sup>

114. A number of alternatives are available to these incumbents, if they wish to expand their operations. Specifically they could bid for and purchase the smaller, significantly less costly 150 megahertz license in the competitive bidding process we are es-

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<sup>156</sup> See *Metropolitan Edison Company v. People Against Nuclear Energy*, United States Nuclear Regulatory Commission v. *People Against Nuclear Energy*, 460 U.S. 766 (1983).

<sup>157</sup> Non-attainment areas are those areas designated by the Environmental Protection Agency (EPA) as being in non-compliance with those air quality standards established by EPA for various pollutants under the Clean Air Act, 42 U.S.C. §§ 7401 *et seq.* See Consolidated Non-Attainment Areas List, EPA, Dec. 3, 1996.